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ABSTRACT

This collection of articles offers advice on concerns and decisions in planning or remodeling a language learning center, incorporation of satellite reception in the language lab, coping with different television standards and technologies in the language lab, testing language skills, and the role of computer-assisted instruction (CAI) in language training. Articles included are: "Effective Use of New Technology in Language Learning Centers" (Junetta Gillespie); "Satellite Communications and Foreign Language Learning" (Victor H. Aulestia); "Dealing with Television Standards Conversion and Copyright" (Cordell E. Jeppsen); "Computer-Assisted Language Instruction and the Language Laboratory" (Dana Paramskas); "Issues, Concerns, and Decisions in Planning a Language Learning Lab" (Read G. Gilgen); "A Role for the Language Laboratory" (Leslie F. Bailey); "Developing the Listening Skill: Recommendations for Materials Design" (Carolyn H. Parks); "Developing Effective Speaking Materials for Today's Language Labs" (Roger A. Sanchez-Berroa); "Bringing Culture into the Foreign Language Curriculum via the Language Lab" (James S. Taylor); "Testing in the Language Laboratory" (Jerry W. Larson); "Involving the Faculty Member in the Language Laboratory" (Jacquelyn Tanner); and "Nonbehavioristic Learning Theory and the Language Laboratory" (Bruce L. Brown). Appendixes include sources of computer software vendors, foreign language audio and video materials, and copyright laws and restrictions. (NAV)

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Planning and Using Language Learning Centers

Edited by Jerry W Larson

The Calico Monograph Series

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Applications of Technology:

Planning and Using

Language Learning Centers

Edited by
Jerry W. Larson

The CALICO Monograph Series

Volume 1

Summer 1986

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Introduction

We at CALICO have especially enjoyed the opportunity to work cooperatively with the International Association for Learning Laboratories (IALL). We want to express our special gratitude to Glyn Holmes, President of IALL, for his efforts in coordinating the presentations made by representatives of IALL at our recent CALICO symposium in Annapolis.

IALL is an organization very much concerned that language learning centers, including language labs and computer labs, be designed and subsequently utilized and perceived as centers capable of implementing state-of-the-art technology.

In support of their concern, members have made significant contributions in the form of a variety of articles compiled under the most capable editorship of Jerry W Larson. We are very pleased to feature "Applications of Technology: Planning and Using Language Learning Centers" as the first volume of our CALICO Monograph Series.

We have talked repeatedly at CALICO symposia about ways in which our consortium could be of greater service to our membership as well as to all professionals interested in applying technology to the teaching and learning of languages. In these discussions, the need for information about the planning and utilization of learning centers has been stressed repeatedly. We are confident that this monograph will be a most useful reference that will be frequently consulted by administrators, supervisors, directors of learning centers, professionals concerned with options for utilizing technology in teaching and learning environments, and language teachers seeking to enhance classroom activities and teaching techniques through the most meaningful applications of technology.

We are pleased with the variety of topics and call your attention to the following areas of focus as examples that should whet your appetite: concerns and decisions involved in planning or remodeling a language learning center; how to incorporate satellite reception in your lab; how to cope with different TV standards; how to test the various language skills in your lab; how to incorporate different technologies into your lab; and the role of CAI in language training.

We encourage you to discuss this volume with your students and colleagues and invite your reactions to this publication.

Frank Otto, Ph.D.
Professor of Linguistics/TESL
Executive Director of CALICO

Effective Use of New Technology in Language Learning Centers

Junetta Gillespie
University of Illinois, Urbana-Champaign

In this era of tight budgets, the question may be not so much whether we will use the new technologies effectively in our language learning centers as whether we will be able to use them at all. One institution of higher learning replaced an antiquated 20-year-old audio lab this year only after a staff member reported to university officials that a visitor from an underdeveloped country had remarked audibly during a tour of the facility, "No good. Too old." So when we discuss "effective use of new technologies" we have to consider whether we are being practical or utopian.

The second thing we have to consider is the extent to which the instructional staffs of our institutions actually want or will use the newer technologies if we can afford them. While overly enthusiastic media people happily predicted an educational revolution back in the sixties as a result of the advent of broadcast television, and a "revolution" in education has been predicted in connection with the appearance of almost every new technology with potential educational applications, in fact, only the invention of the printing press has had a major effect, and this so slowly that the process rather deserves the term "evolution" than "revolution." Nor is this to be regretted, since evolutionary processes tend to bring lasting and effective results, while the results of "revolution" may be ephemeral and fraught with undesired consequences.

Which brings us to a third major consideration: software, or "materials" as we used to call it. Whatever we call it, it's the stuff around which language instruction has traditionally been built: texts, workbooks, syllabi, with (usually) accompanying audio tapes or--rarely, for reasons to be considered later--video tapes, slide-tapes or other media. If we assume that the structure of our educational system will remain reasonably intact over the next decade, and I think this is not only a reasonable assumption but a sure thing, then if non-print media are to be used extensively and with the broad effectiveness that is necessary to make them economically viable, such use must be included as an integral part of curricula, and ultimately must be in some way tied in with text materials. The alternative is computer-managed instruction, which is technically feasible and a very exciting concept, but neither logistically nor economically feasible as an "add-on" to our present system of classroom teaching.

Fourth, and finally, it would be folly to assume that there is an "ideal" language laboratory or resource center that can serve as a template for all other such facilities. We all know better. A survey I conducted a few years ago and visits to various labs, as well as what one reads in journals such as that published by IALL, convince one very readily that language labs today serve a variety of needs, ranging from the narrow "classic" one in which audio services are supplied only to language teaching programs to facilities that have expanded both in media services offered and disciplines to which these services are offered.

This brings us full circle. I submit that we must consider these practical issues as we think about effective use--and our topic is *effective* use--not theoretically or technologically *possible* use--of new technologies in language learning, though we want to consider this, too, en route to arriving at some possible compromise.

This discussion will, therefore, be organized around the following questions:

1. What new technologies are available or are on the horizon which might be valuable media for language teaching/learning and (temporarily setting aside practical considerations) what are the most effective potential uses for these technologies?
2. Given the practical considerations of economics and the structure of our educational system, how can we reasonably expect these new technologies to be used in language learning centers within the next decade?
3. What are the implications for materials and software development?

The New Technologies

Audio

The classic "language laboratory," as defined by Johnston and Seerley, includes "mechanical and electronic equipment by means of which the student, individually or as a group, hears and repeats prerecorded material in the foreign language" (6); allows the students, "individually or in a group" to listen to a tape and hear their own voice; and usually has individual semi-sound proof booths.

Classic language labs are, as we have already remarked, still very much with us, in spite of the Keating Report, the Pennsylvania Foreign Language project report (Smith), and the general discrediting of the audiolingual methodology under the aegis of which this technology was originally developed (Brown), together with the introduction of new methodologies to which it does not seem at first glance to lend itself. While the new "language labs" have more bells and whistles and deliver an indubitably better acoustical product, I am assuming that we should not include them in the context of this discussion as a "new technology." Methods for producing and distributing audiotape materials also seem to be fairly well established, and would seem to require no further discussion in this context. Audio labs (as I shall call them from this point on) are, though, being used and configured in new ways. While central console monitoring is still widely employed, its usefulness has been cogently questioned by critics.[1] Davies suggests that students voluntarily use the comparative mode only in pronunciation drills.

New *uses* more in line with the "communicative competence" approach to language teaching *are* being devised, however; among these are use of lab facilities for dictation, listening comprehension, note-taking skill practice, paraphrasing practice, recording of student dialogues and free speech for later playback to classes, and the recording of "plays" in the target language. Alongside the new uses for audio recording, we have several alternative delivery systems. It is hardly news that most students now possess their own tape players, and that cassettes can be played back at home; or that telephone line transmission of audiotapes to any student who "dials in" is entirely feasible and has been employed on at least one large campus for a number of years. Delivery of audio materials is also possible via campus video cable systems, where audiotaped materials can be transmitted either as the regular audio signal on a channel with or without accompanying text, or on an FM subchannel. Since at least some campus cable systems are now wired into dormitory rooms, student apartments, and classroom buildings, and some can be received as well by anyone in the community subscribing to cable service, cable offers in some locations a viable alternative delivery system for audio materials, and in the case of the FM channel form of delivery, one that is potentially capable of high acoustical fidelity. Finally, we now have the option of purchasing wireless language instruction systems with self contained multichannel headsets that can be taken to any classroom and that have most of the same capabilities as any classic lab.

The real news in audio, however, are random access and digitally recorded audio disks. Random access disks in a floppy format that have been available for some time for use with the "old" PLATO system are now available in different formats for use with microcomputers and the "new" PLATO cathode ray terminal

Video Technology

Video has been so relatively little used in language teaching to date, and we are still so far from being comfortable with such utilization and so far from any systematic way of providing useful materials, that we may do well to consider it *in toto* as a "new" technology.

Many can remember the "whole job" language courses taught via broadcast television, which are still being produced[2] with the important difference from the old days that copies can presumably be made (with proper license) for playback at convenient times. Everyone is also familiar with videocassette technology that has revolutionized the use of video in classrooms to that of a convenient and flexible audiovisual aid that can be used in support of regular classroom instruction, as well as in carrel configurations.

Like audiotape, videotape can be both purchased from commercial sources and self-produced in a range of technological levels ranging from 1/2-inch consumer quality (which is getting amazingly good in quality and versatile in capabilities) to 1/2- or 3/4-inch "cable" quality produced in small studios or in the field and later edited for classroom use.

Another source of videotaped material is "off-the-air" recordings. (Everyone using them should be aware of the pertinent copyright restrictions.) While it is difficult to see how domestic television can serve other languages than English, Berwald and others have come up with some ingenious suggestions, and I can testify that these do work.

This brings us to satellite reception, the potentials for which are discussed by Aulestia elsewhere in this volume.

Attention at this point should be called to SCOLA (Satellite Communication for Learning), founded in 1983 by Father Lee Lubbers of Creighton University, and other interested educators, including several language lab directors. SCOLA is currently seeking a grant to establish an uplink service of international video materials to serve educational institutions in the U.S., Canada, and perhaps part of Mexico. Certainly the expense of an uplink or connecting system for international programming is such that all interested educators should work together; this is the kind of activity SCOLA is designed to further. Uplinks are fabulously expensive. Earth stations, on the other hand, are not: most of us could purchase and install a perfectly adequate facility for under $5,000. DBS satellites, while feasible for commercial uses, seem in this context just a more expensive alternative to an uplink that would cover the entire country.

Multi-standard equipment, which will play back tapes recorded abroad in PAL and SECAM standards (and sometimes record in one or more of these if two machines are available) should be standard in every language laboratory. Costs for such equipment run under $3,000. With it, tape exchanges with colleagues and classes abroad become feasible, providing that your overseas counterpart has similar equipment. Readers are referred to the article by Jeppsen for fuller treatment of this possibility, as well as for the possibility of color standard transfers.

Last, but of course far from least, of the new video production technologies are video disks, which when joined with microcomputers may well be the language learning medium of the future. Several interfaces presently are on the market, most of them with accompanying authoring systems, and some microcomputers are being provided with built-in interfacing capabilities. Another new development is the "still-frame decoder," which makes possible the recording of up to ten seconds of audio on a single videodisk frame. Since videodisks are very expensive to produce, the possibility of using specially edited videotape in interactive configurations with computers should not be ruled out.

As for video delivery systems, to broadcasting and delivery by portable cart we now add the possibility of cable distribution. This in itself is nothing new, but some campuses are now wired into local community-wide cable systems that can be used to distribute video to dorm rooms and homes in the wider community, as well as to classroom buildings. Both picture and sound or text and sound can be transmitted. Also available are large-screen video projectors capable of handling both composite and RGB signals, as well as playing back in PAL, SECAM and NTSC with unbelievably excellent resolution.

Concerning video carrels on the model of audio lab carrels, I admit to some doubt when resources are scarce, except in situations where individual instruction is really taking place, as in interactive configurations with computers. More than economic considerations may be working here, and it could be argued that the most effective uses of video in language teaching seem to be those that take place in groups, with the teacher providing a great deal of guidance before and after--and even during--the viewing, calling attention to important features as they occur. If out of class viewing is needed, or wanted as an option for students who may have missed the classroom showing, I would suggest looking at the possibility of delivery at set times via a campus cable system supplemented by playback in a single classroom for students without cable access. Also valuable are small sound-proofed rooms where individuals or small groups of students could view together, discussing materials as they go along; where such rooms are not available, multiple headsets are a possibility. Having at least a few carrels for individual viewing is recommended.

There is a myriad of uses for videotaped materials in language teaching,[3] such as taping of methodology students for self or supervisor critique; taping student performance for self, teacher, or peer critique; or as a motivator for language production when used to tape class skits or tapes for exchange with overseas counterparts. Resource centers with their own production facilities also produce tapes designed to be used as the center, or as an important part, of curriculum units or modules, a subject about which we will have more to say later.

Computers

Language labs and learning resource centers have adopted a variety of approaches to the introduction of computer technology, ranging from the installation of microcomputer labs to decisions to purchase a few computers for materials development and research only to decisions to postpone the introduction of computers until such time as a wider variety of excellent teaching materials is available and use of the technology is more widely accepted and understood by teachers. Also many are postponing involvement with computers hoping that the cost of equipment will come down as the technology improves.

In addition to instruction, the use of computers for testing, management of instruction, and management of the resource center facilities themselves (equipment and software checkout, inventory, cataloguing, etc.) should also be explored. Institutions making a decision to invest in microcomputers should, of course, consider the particular needs of foreign language instruction in making selection of the machines they will purchase. Among such essential features are the ability of the computer to produce the requisite diacritical markings; graphic facility for the production of new fonts, or ready availability of such fonts; and availability of authoring systems or template lessons designed to accommodate language instruction. It is wise to insist that such capabilities and facilities be demonstrated before purchases are made.

An especially exciting potential for computers, already mentioned above, are materials that combine video and computer materials interactively, thus providing the visual and oral/aural element lacking in computers and the individualization lacking in video technology. Problems of software production for interactive configurations will be considered below.

Utilizing the New Technologies

By way of introduction, let's visit the Language Learning Resource Center of Megabucks University. Wending our way through the picturesque ivy covered oil rigs on the grassy quadrangle, we glance up to admire the shortwave antenna and satellite dish on the roof. We pass on the right a new "classic" language lab, where we hear microchips and play-back units humming under a subdued chorus of voices engaged in pronunciation drills. In a second lab, configured in small rooms accommodating several students each, small groups of students in a French class are engaged in the production and recording of "radio programs" to be shared on the following day with classmates.

Conveniently located within the audio lab complex is the audio production and duplication facility, with a sound proofed recording booth, sound mixing equipment, tape decks that play tapes when their numbers are dialed from any outside telephone, turntables, and high speed duplicators. Also centrally located in this complex is the audio and video tape and disk library with computerized listings of holdings and computerized checkout facilities. Between the audio and video labs is a room with several small listening booths containing shortwave radio equipment, and a small soundproof room with a receiver for the satellite dish we saw earlier. Included in this room is provision for recording materials from shortwave and satellite for later playback in classes or via the campus/community cable channel dedicated to international programming.

Beyond, a sign points toward the "Video Laboratories," which include, our guide explains, a fully equipped small studio with multiple cameras, light board, and a collection of sets and standard props; a control room, also incorporating a 3/4 inch editing facility complete with a time base corrector, a film chain for transferring 35mm slides and 16mm film to videotape, a cart for sound effects, and dubbing facilities for the three major formats. Another feature of the control room is a microcomputer for generating graphics, titles, and captions. When video-computer interface lessons have been developed and tested on tape, the all-university video service and disk mastering facility produces a disk that is then offered at cost to other members of the software consortium to which Megabucks University belongs.

A second small studio is a "do-it-yourself" facility for use by small classes. This contains a microphone, recorder, monitor, and small color camera, with an easy-to-handle light board and complete instructions for operating the facility. (The guide explains that orientation is provided for new users, and that operating assistance can be provided on request.) While the large studio is used primarily for materials development projects and requires the presence of trained video personnel, this smaller studio provides a more relaxed environment and is widely used for the production of "class skits" in the target language and for student oral assignments. (The usual procedure is for students to work in pairs, outside of class time, taping and retaping their performance until satisfied. The teacher can critique these during playback in class or individually, saving class time and allowing students a clearer vision of their own language performance.) The small studio is also used occasionally by faculty and graduate students who wish to rehearse and critique their own conference presentations.

Another room contains equipment for loan to classrooms, including such standbys as overhead projectors and cassette players and also portable video equipment that can be delivered to any classroom in the building and set up ready for use by classes. Most frequent use of this equipment is for playback of classroom materials. The second most frequent use is for taping of the teaching performance of teacher trainees and graduate teaching assistants. A portable multi-standard playback unit is also available for classroom use, as are microcomputers mounted on carts with large screens or projectors for use in classroom revision of student writing exercises completed via word processing systems on the resource center's microcomputers.

The video laboratory and microcomputer laboratories are joined, with video playbacks (including multistandard playback facilities) at one end, microcomputer/video interfaced configurations in the middle, and microcomputers at the other end. The room is staffed by one student with special training and skills with computers and one with special video training and skills, thus allowing for multimedia troubleshooting if necessary. In addition to a few video carrels, there are several small rooms for viewing by groups or by teacher supervisors and student teachers, since such viewing often requires commentary or consultation.

The microcomputer laboratory leans heavily toward one brand of computer in order to maximize the possibilities for producing and utilizing CAI, but also includes some examples of the other models most widely used for instruction. There is a software library on the premises that includes a collection of disks and manuals placed there on reserve by teachers for use by class members in addition to offline documentation and operation manuals. A second, smaller microcomputer laboratory is used for group instruction on computer use or CALI. This lab is opened for individual use at other times. An extensive software collection for audio, video, and computers is maintained, with copies checked out or sold to students where appropriate. Such collections are financed in part by the teaching units of the various languages, and partly from the materials acquisition budget of the center.

Convenient offices are provided for staff so that they have the privacy and quiet they need to complete work but are still able to keep an eye on activities and to provide expert assistance when needed. There is also a staff conference room and lounge to provide opportunities for interchange of ideas and information. All lab records and data, including checkout systems, are computerized, and all use statistics automatically generated for daily or weekly printout. Fiscal year totals are cumulated on a continuing basis. Nor should we fail to mention the generous and conveniently located storage areas that are included in this lab.

Finally, several audio-visual classrooms and a small auditorium are available for use by language classes as well as for conferences, colloquia, and meetings. These rooms are equipped with motion picture and slide projection equipment and a large screen video projector, as well as voice amplification and recording facilities.

After congratulating the director of the Language Resource Center of Megabucks University on his budget and facilities, we head soberly back to reality.

This picture is not utopian, at least not in the technological sense. Almost everything included is an actual service being offered by a language resource facility somewhere in the country *today*. And while this view may be colored by my own preferences and predilections, it is not unrealistic; it represents at least roughly what such a facility serving a large and distinguished institution of higher learning *should* be able to offer its users. And in this context it serves as a means of displaying what the potential of *existing* technology in learning lab facilities might be.

Practical Considerations

Though it may be tempting to those on the forefront of technological innovation who read the brochures and attend trade shows and conferences to neglect well-established services that, in some cases, have only recently begun to be incorporated effectively with classroom instruction in honor of new ones, it may be the better part of wisdom to curb somewhat this tendency--particularly when the new technologies are so often in a state of flux, and today's machine will almost undoubtedly be rendered obsolete by tomorrow's. For example, a few microcomputers may be adequate for producing pilot materials and demonstrations, or for loaning to faculty with particularly interesting research or materials development projects in mind, while a roomful may be largely used as word processors--which is fine, if that is how we want to use our resources.

As we are able to offer new technologies to our users, it might be well for those of us who have only ordinary budgets to arrive at some sort of formula for allocating our resources between maintaining and upgrading present services and introducing new ones for which there is presently little demand but which we sincerely believe after appropriate critical analysis and research to have considerable potential in the teaching and research programs of the units we serve. Here is a figure for consideration: 75% to maintain and upgrade traditional and already widely used services, and 25% as venture capital in the new technologies. The latter figure should include a factor for "pump priming" materials development as well as a factor for maintenance and space remodeling, furnishing, or staffing needs that might be engendered.

In considering the utilization of new technologies, we also need to keep firmly in mind the realities of our educational system. From preschool through PhD., the "American way," relative to the rest of the world, is toward the autonomy of the individual teacher who maintains a reasonable degree of control of what goes on in her classroom. It would be unrealistic to expect every teacher or institution to build curricula from the ground up; therefore, reliance on a text book with its accompanying workbook and perhaps audio tapes is to be expected. And books are, let's face it, pretty powerful media, being the absolutely best way to present print without engendering terminal eye strain; allowing for almost instantaneous paging back and forth; being inexpensive when compared with other media, which allows each student to possess one; being portable enough to be taken home; and being much more amenable to curling up in bed with than any non-print instructional medium I can think of.

What other media can give, of course, is sight and sound, both of great importance in learning a language, plus opportunities for individual interaction and immediate feedback, important in any kind of learning. But how do we incorporate these media into the present textbook-centered structure of our educational system? Textbook manufacturers seem reluctant to distribute video tapes or computer courseware, let alone video disks as standard accompaniments to their texts. The reasons for this are understandable. The "new" media are very easy to pirate--which is equally true of audiotape, but they are also very expensive to produce, which is not true of audiotape. The usual distribution syndrome that applies to audiotapes--either charging a fee for a set of masters or providing tapes free to institutions with large enrollments--simply will not hold for the more expensive media. Profit margins are slim in the textbook industry and will not provide the revenues necessary to float new technologies. Meanwhile, CALI and video are used as "add-ons," which particularly media-oriented teachers may relate to their curricula if they wish, and if budgets allow. And there the matter seems to rest--or does it?

Materials Development

This leads naturally to this final consideration, that of materials development in the newer media. I would like to suggest that the present model for the distribution of texts and audiotapes, while it works well for these relatively inexpensive media, is an inappropriate model for the new media. Furthermore, while we may expect textbooks to be the major instructional medium for some time, we cannot produce software for new media cost effectively if they are tied to particular texts.

Some possible solutions are: (1) production of "generic" software, (2) formation of consortia of educational institutions to seek and share funding for materials development (which is not the same thing as producing software by committee), and (3) on line cataloging of available software that will relate items to particular chapters of particular texts, as well as cross listing by subject matter, level, language, and media.

By "generic" software I mean the following: With respect to CALI, it is the production of lessons addressed to instructional problems most frequently isolated as requiring special attention. I would identify those problems by surveying the most commonly used texts to identify areas meeting this description. After the lessons are planned, programmed, debugged, field tested, revised and declared ready for use, I would publicize those lessons as supplementing specific chapters of specific texts, as well as publicizing them for their content *per se*. If possible, I would try to seek the approval and support of the various text authors and publishers early in the development process. Who knows, they might even contribute toward the cost of production, and certainly they might aid in distribution, if only by advising institutions of the existence of the relevant lessons. Another fruitful approach to CALI production is that of "template" lessons, some excellent examples of which are discussed by Dana Paramskas elsewhere in this volume.

With regard to videotapes in general, the same process might be followed; though, while I would expect computer lessons to deal primarily with grammar, syntax, and vocabulary, the video lessons would deal more with cultural and contextual background as it relates to appropriate usage and nonverbal behavior. A sociolinguistic approach that shows a particular language function (e.g., greeting, apologizing, inviting) in various settings and between persons of varying status and age would be one very promising model--one we are already working on at the University of Illinois.

With regard to production of videotapes, while no one objects to broadcast quality materials taped on location abroad, provided they are pedagogically useful, it can be argued that the cost of such tapes is such as to make it unlikely that they will be cost effective. And while authentic "off-the-air" materials from abroad (assuming rights to copy have been granted) may be extremely useful, often they do not depict the kinds of situations in which our students are apt to find themselves when traveling abroad. In the absence of adequate supplies of pertinent models from these sources, we may consider that extremely useful materials of cable quality can be effectively produced in small studios on our campuses utilizing structured but non-scripted situations "portrayed" not by professional actors, but by fluent native speakers or, if characters in the tapes are Americans, by fluent Americans. With the simplest of props and sets, designed to look, if not authentic, then at least not glaringly unauthentic, sufficient context can be established to guide students toward the appropriateness of the usages and behaviors exhibited. Tapes produced in this way are very inexpensive, and with a bit of editing they are ready for instant use in classrooms.

Far more important than expensive production is the use that is made of the medium in the classroom. The most effective video-based modules I have seen--and these have served as one of the prototypes for much of our video work at Illinois--are those produced by Tony Silva, Teaching Associate in our Intensive English Institute. Produced without sets and with a minimum of props, these brief improvisations of language functions performed by teaching colleagues are used as models in very carefully constructed modules that first guide students in an analysis of the scene from varying standpoints (e.g., grammar, vocabulary, nonverbal communication, sociocultural aspects), then they lead students to write and act in their own skits. The modules arrange for videotaping of student skits and finally provide for classroom critique of the skits. Perhaps it could be suggested to publishers that they subsidize to a small extent the production by a college or university video facility of tapes related to their texts and advertise their availability to institutions that have adopted that text. Better yet, generic tapes could be devised, based on the model already outlined, and appropriate teaching materials devised to tie them to various units treated in texts.

With a little extra shooting and special editing, "generic" tapes can be used as the basis for interactive video-computer lessons. Such lessons, designed for supplementary or individual study, can follow the "Silva model" by providing for a student choice of situations and characters, for a range of different ways of analyzing the scenes, and for various "channels" and combinations of channels (e.g., audio and video, video only, audio only, text only, or text with audio.) Successful tape/computer lessons might then serve as models for the production of broadcast quality one-inch tapes for mastering to videodisks. The basic programming will have already been done, and the lesson tried out many times and revised accordingly, before the expensive stage of committing the materials to disk is undertaken. Once a disk full of "generic" materials is available, of course, anyone anywhere can write computer lessons around it to suit the particular needs of a curriculum, or the disk can be utilized with a "paddle" to pull out segments for classroom illustration.

This is one possible model; I am sure there are a number of others of equal promise. The main point is, of course, that in order to be economically viable, materials prepared for computer and disk will probably have to have very wide applicability, and that wide applicability will have to be specifically promoted in terms of the most popular texts at different levels in order for the production of such software to approach cost effectiveness. Even with this, it seems essential that institutions of higher learning combine to form consortia for the development and production of materials in non-print media, perhaps joining with publishers or groups of publishers. Also useful are the establishment of central computerized listings of non-print teaching materials (on the model of CALICO'S listing of computer language lessons). These listings should include not only commercially distributed materials but also those produced for "in-house" use at our various educational institutions. Such listings may pave the way for sharing materials among institutions.

Conclusion

We will conclude this discussion by sharing yet another vision of the language resource center of the future. As described in the *Toronto Star* on August 1, 1981:

> On the television screen, waves lap against the shore of a tropical island while baroque music softly plays. . . . The nightly program, called French in Bed. . . . [is] a unique experiment in television using the powers of the

> subconscious. While the waves are lapping and the music is playing, French words are being softly spoken and, hopefully, picked up by your subconscious. This is an approach to language learning that professor Louis Mignault has been using for seven years with his classes at the University of Toronto. . . Some classrooms have been specially equipped with chairs that fit the contours of the body. The rooms are cozy with carpeting on the floor and flowers on tables.

I hear that Megabucks University is installing a room like this. Maybe we need one of those too.

Notes

[1] c.f. Arthurs (38-48), Smith (120-123), Carroll (273-281), and Hammerly (336-339).

[2] c.f. *IALL News*, Winter 1983.

[3] See Gillespie for further examples.

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Satellite Communications and Foreign Language Learning

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Introduction

This paper will provide some selected examples of the potential value of satellite communications in the learning of foreign languages. First, though, it is necessary that the reader understand the principles of satellite communications. It is also necessary to remove the notion that satellite technology is out of the reach of the foreign language teacher. All over the country, colleges and universities are taking advantage of a new communications tool: the satellite earth station. This readily available technology allows them to:

- expand their curricula.
- receive teleconferences from around the country.
- offer the students hands-on experience with the latest in communication technology.
- bring premium concerts, movies and other entertainment services to campus.

The use of satellite technology is a natural complement to journalism and broadcasting curricula.

Satellite Transmission Basics

Most communication satellites, domestic or international, have stationary orbits, which means that each satellite always remains in its assigned spot in the sky over the equator at an altitude of 22,300 miles. At this altitude, their orbital rates exactly match the rotation of the earth; therefore, the satellites appear to be stationary over certain portions of the earth.

Television, data and radio signals are beamed to the satellite from earth by a transmission antenna. This is called the *uplink* signal, and it is received by the satellite. Then the signals are rebroadcasted back to earth in a pattern that covers most of the intended continent. This second signal path is called the *downlink.* It is this downlink signal that is available to anyone with a satellite earth station.

Basically, a satellite earth station, sometimes known as a television-receive-only (TVRO) system, includes a satellite antenna (a large parabolic dish) with a diameter between 3.5 and 10 meters, a low noise amplifier (LNA), a receiver to convert the microwave signal to radio frequency (RF) for your TV (consisting of a downconverter and FM demodulator).

The Antenna

The antenna or parabolic reflector is a precisely curved metallic surface shaped so that the incoming signal is reflected from the antenna surface and focused onto one spot. The reflected signal is picked up by the feedhorn which is located at the focal point of the system. It funnels these microwave signals to the low noise amplifier (LNA). Within the mouth of the LNA is a short metal probe about an inch long. This is the actual antenna, which conducts the microwave signal to the first stage of amplification.

The LNA consists of several microwave amplifier circuits. They multiply the weak microwave signal by a factor of 100,000. The resulting workable signal is then sent via coaxial cable to a downconverter.

The downconverter is a specialized electronic box which reduces the super-high frequency (4GHz) sent by the satellite to a much lower frequency (7OMHz) called the intermediate frequency (IF).

The downconverter must be located at the antenna site in order to eliminate the need for an expensive, heavy cable between the antenna and the receiver.

The resulting usable signal is then filtered and amplified within the downconverter and sent via coaxial cable to a receiver. The satellite receiver takes the amplified satellite signal and delivers a television signal suitable to an ordinary television set (Channel 3 or 4). A standard satellite receiver is capable of receiving up to 24 channels of video.

The above description is a general operational view of a typical earth station. There are many other technical considerations that one has to take into account when purchasing a system. A thorough investigation of existing systems is a must before an RFP (request for proposal) is sent to the vendors. Moreover, consulting with actual users of satellite systems is an education in itself.

Basic Satellite Reception Requirements

In order to receive satellite transmission, the following are basic requirements and conditions:

- Electricity available near the proposed antenna site.
- Unobstructed view of the southern sky. This means

that no buildings or mountains should obstruct the signal's path.
- A 10- or 15-foot outdoor space for the antenna within 500 feet of the headend or language building.
- An antenna and the related electronics, cables and hardware.

For the reception of domestic satellites, a 3.5 meter antenna is a good choice; this antenna can be mounted on a roof top.

For international reception, a 5-meter dish is an absolute minimum. It cannot be economically mounted on a roof top. It must be mounted at ground level.

International Television and Foreign Language Learning

It is generally agreed that the most effective way to learn a language is to live in the country where it is spoken. However, there are obvious reasons why the majority of our students cannot spend a year of study abroad, including the high cost in time and money. However, today it is possible to create that in-culture learning experience on a far more cost-effective basis by using existing satellite systems to bring into our universities authentic pieces of foreign culture through the magic window of television.

The foreign language programming available from another country via satellite offers the instructor and the learner of another language a wealth of aural and visual experiences that complement the "formal" classroom style of language and "culture" courses. Naturally, some language purists will frown at the idea of exposing the students to such idiosyncrasies as "lazy forms of speech," "slang expressions," and "undesirable dialects and accents," but the fact remains that:

> Students are going to meet and talk to such people if and when they are using their foreign language skills, and in some way they have to be prepared for these encounters, regardless of the opinions of the teacher about sociolinguistics. Similarly, students are also going to meet and need to understand all sorts of speech forms which are not formal, literary and 'good,' and an enthusiastic student will want to know and use them so as to avoid the charge of speaking like a book. The teacher has, in some way, to help lay the foundation for success in this area too (McArthur 106).

This new technology introduces into the foreign language curriculum two aspects that are the most underestimated and least understood: aural and visual comprehension. As Nord observes in his article on developing listening fluency before speaking:

> In order to handle even a simple free conversation, an individual must have a much broader competence in listening comprehension than in speaking. When speaking a language, a learner can manipulate a relatively narrow range of vocabulary at his own pace to express an idea. However, when listening to a reply, he no longer controls the choice of vocabulary, the structure employed, nor the rate of delivery. He must be prepared to assimilate those words which are part of the speaker's active vocabulary and he must adjust to the speaker's rate of speaking. This requires much greater fluency in listening than in speaking. This is especially the case when conversing with a native speaker of the language (17).

Thus, it follows that the student of a foreign language should have abundant opportunities to polish his listening comprehension skills beyond what he has learned in the classroom. Having continuous and free access to regular foreign language television programs provides the learner with this opportunity. When viewing these programs his attention is continuously challenged by the rapid change in speakers, clarity of articulation, regional accents, speed of delivery, scenery, content, etc. Listening and viewing this type of television programming should not be considered a passive skill, rather it should be considered, in the context of foreign language learning, a receptive/perceptive skill.

Littlewood observes in his *Communicative Language Teaching* that the new speaker of a language, in order to be successful in the foreign environment, should be able to understand speech with background noises or unclear sound reproduction; be able to adjust for and be accustomed to halting and irregular speech patterns; and be able to understand speakers with different accents and pronunciation tendencies.

Learning a foreign language also entails being acutely aware of the standards and values of the target society. It follows from this that the learner must also be provided with adequate perception of social processes. The learner does not necessarily have to be an active participant in the process, but he must be trained to be an informed observer. Here is where the student needs the help of the instructor. In order for foreign television viewing to be a profitable experience, the learner must be taught to decipher "the variety of verbal and non-verbal realizations of communicative intentions in the target language and culture," and "the learner must be provided with adequate perception of social processes. Without this ability they cannot receive or produce utterances in the target language" (Schwerdtfeger 27).

The one practical way to bring those experiences to the learner is by offering him as much opportunity as possible to view a variety of foreign language television programs. From commercials to news stories, from interviews to soap operas. All of these programs contain an unlimited wealth of functional aspects and social situations of the target culture.

Managing the System

Managing this new technology is not a complicated exercise. Once the electronic and mechanical systems are installed, tested, and adjusted and standard procedures of operation are established, it is a question of scheduling the viewing time for each available language (e.g., French on Mondays, Spanish on Wednesdays, Russian on Fridays, etc.).

A monthly International TV Guide has to be compiled from the schedules published by the stations and trade magazines such as *Orbit International* and *Orbit's* domestic issue. It should be distributed to interested faculty and students. It should indicate the locations on the campus where the programs can be viewed.

The key to the success of this program is its accessibility and availability. The satellite program should be available to anyone who has any interest in foreign languages, foreign relations, international marketing, journalism, etc.

Satellite programs can be made available by:

a) dedicating one or two AV carrels with TV monitors and multiple headsets to this task. They can be located in the language media center and/or the library.

b) distributing the satellite programs via cable to as many locations as possible within the campus (classrooms, labs, dormitories, etc.).

c) distributing the TV signal to the faculty offices or conference rooms. An outlet near the faculty offices permits faculty members to monitor and record the satellite programs.

A word of caution: The language media center or language laboratory should not become a video copy center. A policy on video recordings of satellite programs should be established from the very beginning of the operation. The policy we have adopted at U.M.B.C. states that media personnel are not authorized to make copies from the satellite feed. However, the faculty is encouraged to record the satellite feed themselves as long as the Fair Use Doctrine of video recordings is followed. This policy is necessary because the expected demand from the faculty, hungry for materials, would be so great that the entire media staff will spend most of their working hours recording, duplicating and labeling videotapes.

One or two video recorders with timers could be assigned for faculty use for the purpose of recording from the satellite. The faculty has to be trained to do many of these media jobs. My advice is to adopt the 1/2" VHS or Beta formats for this type of operation.

If the adopted satellite earth station is capable of receiving programming from the Intelsat or Gorizont satellites, a multi-standard video recorder and TV receiver is a must. The American and Canadian television standards (NTSC) are electronically different from the television standards of the European and some South American countries (PAL/SECAM), and the local video equipment will not be able to record or reproduce their signals.

A new era is fast approaching in foreign language learning. Teachers and students will be able to use more abundantly the language media center facilities to present the richness of foreign languages and cultures through satellite reception. Also possible are video and audio conferences between our students and their counterparts in a foreign country. Suitable videotapes, films, interactive videodiscs and other realia are now available.

The foreign language teaching profession is typically a conservative group; nevertheless, it has shown a remarkable ability to capitalize on new ideas and devices in the teaching of foreign languages. Perhaps it is timely to suggest that it show equal enterprise in adopting readily available space technology.

Copyrights and the Fair Use Doctrine

In order to receive and make use of the audio or video materials available via satellite, it is important that written permission be obtained from the organization or the government who owns the satellite channel. The initial letter from the university should emphasize the educational and research value of the satellite materials to its foreign language instructors and students; that the guidelines for off-air recording of broadcast programming for educational purposes be followed at all times; that one be aware of the licensing position of the country concerned when receiving international programming. Some countries have a virtual "open-skies" policy, i.e., the signal that comes from any satellite is the property of the receiver unless the originator prevents the reception by special law or by signal scrambling. In other countries the reception of private communications without permission is illegal. Nevertheless, special permission may be granted for experimental, developmental, or demonstration purposes.

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APPENDIX A
Glossary of Terms

Antenna--A device for collecting and focusing electromagnetic energy, resulting in an energy gain generally proportional to the antenna's dimensions.

Aperture--Same as "diameter" of a parabolic dish antenna. Also used to refer to the port (hole) in the antenna through which the signal is fed.

Azimuth--Angle in degrees left or right of true north.

Baseband--An information or message signal with a content that extends from a frequency near "dc" to a finite value. Video baseband is from 50 Hz to 4.2 MHz, according to NTSC standards.

Beresight Point--The area of highest gain in the center of the pattern of a directional antenna.

Carrier--A high-frequency radio signal which is modulated to carry information over long distances.

Cassegrain Feed--A system that uses a secondary reflector to focus a signal on the feed. One major type of parabolic dish antenna.

Channel--A segment of bandwidth used to establish a communications link. In satellite TV, sometimes synonymous with "transponder."

C/N--Carrier to noise ratio. The ratio of signal power to noise power in a system, usually expressed as a power ratio in dB.

C/No--Carrier to noise power density ratio.

Decibel (dB)--The ratio of two power levels, used as a measurement of gains or losses in a system. Also used to express absolute power levels, such as dBW.

dBW--Decibels above one watt.

Demodulate--The process whereby information is recovered from a carrier.

Digital--Using numbers expressed in digits; a digital circuit is one which operates as a switch, either on or off, high or low.

Downconvert--To reduce the frequency of a signal, typically from RF to IF.

Downlink--The signal that comes down from a satellite to an earth station.

Duplex--A term meaning two-way communications: simultaneous reception and transmission using different frequencies.

Earth Station--The terrestrial portion of a satellite link consisting of an antenna, amplifiers, and equipment for transmitting and/or receiving a satellite signal.

EIRP--Effective Isotropic Radiated Power. Signal strength emitted by a transmitting antenna, expressed in dBW.

Elevation--Direction upward from the horizon, usually measured in degrees.

Feed--The device on a satellite antenna that transfers signals from the antenna to the rest of the equipment in the reception system.

Footprint--The pattern of signal strength of a satellite's transmission as it strikes the earth. The pattern is indicated on a map with concentric lines connecting equal levels of EIRP.

Frequency Modulation--A system where the instantaneous radio frequency varies in proportion to the instantaneous amplitude of the modulating signal.

Gain--The amplification ability of a device, expressed in the ratio of output power to input power, measured in dB.

G/T--The ratio of Gain to Noise Temperature. The primary means of expressing the performance of a satellite reception system, expressed in dB.

Geostationary (Geosynchronous)--The orbit of a satellite 22,300 miles above the equator. In such an orbit, a satellite will circle the earth at the same relative speed as the earth's rotation, causing the satellite to remain fixed in relation to a specific point on earth.

HPA--High Power Amplifier. The final RF amplifier between the modulator and the transmitting antenna.

IF--Intermediate Frequency. This refers to the low frequency RF level to which the satellite signal is converted before processing inside a receiver, typically 70 MHz.

LNA--Low Noise Amplifier. A preamplifier designed to contribute the least amount of thermal noise to a received signal. There are three basic types: the GaAs FET transistor-type amp, the Uncooled Parametric Amplifier, and the Cryogenically Cooled Parametric Amplifier.

Local Oscillator--An oscillator inside a receiver that generates a frequency that when mixed with the received signal, produces the Intermediate Frequency.

Look-Angle--The angle at which an antenna must be aimed in order to "see" (receive the signal from) a particular satellite, also called Position Angle.

Modulate--A process which imposes message information on a carrier by varying the amplitude, frequency or phase of a wave.

Path Loss--The loss of signal strength incurred between the point of transmission and the point of reception.

Parabolic Dish--A satellite antenna characterized by a round, bowl-like shape that concentrates signals to a single focal point. There are two basic types of parabolic dish antennas: The prime focus feed and the Cassegrain feed.

Polarization--A characteristic of the electric field of an electromagnetic wave in space. Four types of polarization are used with satellites: horizontal, vertical, right-hand and left-hand circular.

Position Angle--See "Look Angle."

Prime Focus--The type of feed in a parabolic dish antenna which is positioned above the dish as the antenna's focal point. As differentiated from a Cassegrain feed.

Reflector--The antenna's main curved "dish," which collects and focuses signals onto either the secondary reflector or the feed.

Sidelobe--The response of an antenna to unwanted signals originating from sources other than the intended transmitter. This type of interference can greatly reduce antenna efficiency.

S/N--Signal-to-Noise Ratio. The Ratio of the signal power to the noise power in a specified bandwidth, expressed in dBW.

Transponder--A microwave repeater (receiver and transmitter) in a satellite which amplifies and downconverts the frequency of a received band of signals. Domestic communications satellites use either 12 or 24 transponders, which usually have a 36 MHz bandwidth.

TVRO--Television Receive-Only. An earth station capable of receiving satellite TV signals but not capable of transmitting them.

Uplink--The signal sent from the transmitter (on earth) to the satellite.

APPENDIX B
Guidelines for Off-Air Videotaping

1. The guidelines were developed to apply only to off-air recording by nonprofit educational institutions.

2. A broadcast program may be recorded off-air simultaneously with broadcast transmission (including simultaneous cable retransmission) and retained by a nonprofit educational institution for a period not to exceed the first forty-five (45) consecutive calendar days after date of recording. Upon conclusion of such retention period, all off-air recordings must be erased or destroyed immediately. "Broadcast programs" are television programs transmitted by television stations for reception by the general public without charge.

3. Off-air recordings may be used once by individual teachers in the course of relevant teaching activities, and repeated once only when instructional reinforcement is necessary, in classrooms and similar places devoted to instruction within a single building, cluster or campus, as well as in the homes of students receiving formalized home instruction, during the first ten (10) consecutive school days in the forty-five (45) calendar day retention period. "School days" are school sessions days--not counting weekends, holidays, vacations, examination periods, or other scheduled interruptions--within the forty-five (45) calendar day retention period.

4. Off-air recordings may be made only at the request of and used by individual teachers, and may not be regularly recorded in anticipation of the requests. No broadcast program may be recorded off-air more than once at the request of the same teacher, regardless of the number of times the program may be broadcast.

5. A limited number of copies may be reproduced from each off-air recording to meet the legitimate needs of teachers under these guidelines. Each such additional copy shall be subject to all provisions governing the original recording.

6. After the first ten (10) consecutive school days, off-air recordings may be used up to the end of the forty-five (45) calendar day retention period only for teacher evaluation purposes, i.e., to determine whether or not to include the broadcast program in the teaching curriculum, and may not be used in the recording institu-

tion for student exhibition or any other non-evaluation purpose without authorization.

7. Off-air recordings need not be used in their entirety, but the recorded programs may not be altered from their original content. Off-air recordings may not be physically or electronically combined or merged to constitute teaching anthologies or compilations.

8. All copies of off-air recordings must include the copyright notice on the broadcast program as recorded.

9. Educational institutions are expected to establish appropriate control procedures to maintain the integrity of these guidelines.

Special Note: On January 17, 1984 the U.S. Supreme Court announced its opinion in the Sony case involving an action originally brought by Universal City Studios and Walt Disney Productions. The court ruled that off-air videotaping by individuals in their homes for their own private use does not violate copyright, especially in view of the fact that most individuals tape for delayed viewing or time shifting. However, this decision has no effect upon off-air videotaping by schools, colleges, libraries and like institutions or in any other situation where the circumstances involve a public performance as defined in the Copyright Laws (Pub. L. 94-553).

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APPENDIX C

The Legal Copy

Copyright Implications of Satellite Transmissions

Ivan R. Bender

One of the fastest growing areas in television technology is the use of satellite transmissions by individuals and institutions, as well as by restaurants and lounges. Since the technology enabling direct reception of satellite transmission has become less expensive and more available, schools and colleges are increasingly using such transmissions for a variety of purposes. Not surprisingly, there are copyright concerns of which school officials must be aware.

First, as an update concerning statutory activity, the U.S. Congress enacted a law in 1984 permitting an individual to receive unscrambled television pictures from satellites without any copyright liability for viewing the programs. This applies only to private performances (uses) of the programs--not to public performances.

In other words, any public performance or use of a satellite transmission requires a license from the copyright holder or its authorized representative. This 1984 legislation provides for severe criminal penalties of $1,000 per infringement, 6 months imprisonment, or both. Copyright owners also have recourse to civil remedies.

For example, suppose an educational institution installs an earth station to receive satellite transmissions throughout the institution: what is the effect of beaming these transmissions into classrooms? As I have pointed out many times, a classroom use constitutes a public performance; thus, a satellite-generated picture must be licensed in order for it to be used legally in a classroom. Although the now-familiar Section 110 (1) describes a limited public performance exemption for face-to-face teaching activities, it does *not* extend its meaning to the use of satellite reception. Therefore, I urge you to use extreme caution. Before you purchase the hardware, you should explore fully all of the legal ramifications.

Let us now consider the applicability of the use of satellite transmission into other areas on a campus. Without question, uses by an educational institution at other sites outside of a classroom would similarly involve a public performance. The *only* exception to this principles is where the television signal is sent directly into the living quarters of students and faculty members. By this I do not mean dormitories in general, but rather, individual rooms.

A "day room" or social hall of a dorm is not considered a place where private performances are held.

What are the implications of satellite transmissions for off-air videotaping? For one thing, the off-air guidelines apply only to broadcast programming, defined as "television programs transmitted by television stations for reception by the general public without charge." Therefore, it appears that satellite reception of *broadcast* television programs may be taped off-air. However, use of such tapes is governed by the guidelines restricting use and retention as stated in the guidelines.

Future developments in this area bear watching. More as the situation warrants.

Ivan R. Bender, a nationally known copyright attorney, was consultant to the U.S. Register of copyrights and served on the committee that negotiated the guidelines for off-air videotaping.

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Dealing with Television Standards Conversion and Copyright

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Few things would be more beneficial to the student in a liberal arts university than the ability to study first hand the cultures, languages, philosophies and politics of other nations. Unfortunately, though the world is becoming smaller and smaller through expanding travel opportunities, none but the most ardent students of foreign cultures will have the opportunity to live in another country long enough to immerse themselves in its culture, to master its language and to identify with its people.

One of the goals of a liberal arts education, therefore, is to provide the next best thing to the first-hand experience. One way of doing this is to bring audiovisual materials produced in that country into this country's classrooms. In the past, these materials were in the form of motion picture films, slides, or audiotapes. Fortunately, these items are reproducible on equipment used in the United States, and are therefore immediately usable in the classroom.

However, more and more there is a need to make use of videotapes produced in other countries. Tapes of news programs, dramatic programs, documentaries, and musical events can add immeasurably to the students' understanding of the nation they are studying.

But for all its advantages, videotape suffers from two drawbacks that severely limit its use outside the country of origin: lack of standardization, and the restrictions imposed by international copyright laws.

Lack of standardization has been a frustrating but common reality of the electronic communication age from the very beginning, and the United States has succeeded in proving time and again that being first on the block with a new technology is not always the same as being the best. Color television transmission is no exception. Our NTSC[1] color television system isn't a bad system, but it does have its failings, and it wasn't long before engineers in other countries offered systems that remedied many of its drawbacks. Hence the acronyms PAL and SECAM.[2]

Refinement, and even politics, didn't stop here, however. Variations in these basic systems have resulted in 5 PAL standards, 3 SECAM standards, and a 525-line PAL system used only in Brazil.

The frustration this multiplicity of systems has caused is evidenced by how some television people have redefined these acronyms. NTSC is said to mean Never Twice the Same Color; SECAM becomes Something Entirely Contrary to American Methods; PAL-M means Pay A Little More, and PAL results in Peace At Last.

Not only must the different television standards be reckoned with, but the videotape formats themselves come in many types. At the University of Iowa Video Center we routinely deal with no fewer than ten videotape formats, ranging in size from 1/2" to 2".[3] Multiply those by the number of television standards in the world that must be routinely dealt with and the problems can become even more troublesome. Fortunately for educators, the videotape format problem has become fairly manageable, since most of us encounter only three cassette formats in our activities. But the incompatibilities between NTSC, PAL, PAL-M and SECAM still leave us with a very real problem.

There are at least two ways to address this problem. One is to purchase a number of multi-standard videotape machines that will accommodate the television standards and videotape formats an educator expects to encounter. A second approach is to make use of standards conversion which would convert international standard tapes to NTSC and to one or two videotape formats for use on the campus. In our experience, the first approach has the following benefits:

1. The initial investment is not very much higher than for NTSC-only equipment. We have found that multi-standard equipment is about 20% higher than NTSC-only equipment of the same format.

2. Generally speaking, the equipment will be used only for playback, so the international copyright rules governing tape duplication are not a consideration in these instances. This does not address, however, the rules regarding public presentation of these materials in an instructional setting.

3. The multi-standard equipment is less apt to disappear from the premises, since it is of no use to anyone but the department who purchased it.

The decision to utilize intensively multi-standard equipment has some difficulties, as well:

1. The equipment is relatively inexpensive, but sometimes it cannot be found at any price. For example, a supplier in New York offered to sell the Video Center a BETAMAX videotape recorder that would handle PAL and SECAM videotapes. He was

quick to point out, however, that his recorder would handle only SECAM-East tapes, as might be found in East Germany, the Soviet Union or the Arab countries of the Middle East. It would *not* play the French SECAM, which was our major interest, nor did he think he could find us a machine that would play such tapes.

2. Multi-standard videotape equipment not purchased through industrial suppliers becomes a white elephant when service is needed. Usually the non-industrial supplier has provided equipment that was not meant for sale in this country, and for which parts and schematics are not available. Sometime ago a faculty member at the University of Iowa located a VHS machine manufactured by Hitachi that he wanted the University to consider for purchase. Calls to Hitachi, America, resulted first in claims that the recorder did not exist; second, that if it were here, it was not meant for this country; and third, even if it were here, they certainly would not support it with parts and service.

3. Many faculty members who are not familiar with the differences between television standards invariably try to play SECAM videotapes on a PAL videotape machine, or duplicate PAL tapes with an NTSC recorder. The symptoms that occur at these times are typical of those that occur when clor-under circuitry or capstan and drum servos fail. This results in both tapes and tape recorders making unnecessary trips to the repair shop.

As stated previously, a second alternative is to arrange for a videotape standards conversion service to process international tapes into one or two selected NTSC formats before they are used on the campus.

Many educators resist the use of standards conversion because they feel it is too "high-tech" and too high priced for their need. They argue that standards conversion is meant for broadcasters, and the materials they use are frequently not of sufficient quality to warrant that kind of attention. Besides, isn't it true that a single hour of conversion time at a commercial facility would pay for a great deal of videotape and associated handling costs to get materials into the university from other countries? These statements have elements of truth in them, but some are also based on faulty reasoning. Whether or not a broadcaster uses a given technology should not determine its application in other fields. If it meets a need, if it provides greater flexibility, and if it allows previously impractical thrusts to bear fruit, then it is appropriate, and it should be given careful consideration to see if it has application in a given instructional application. Where would educators be if cameras, tape machines, switchers and character generators had remained the domain of the broadcaster? It should be remembered that helical-scan videotape, particularly 3/4"

U-matic, originally found its applications in instructional television. It was subsequently adopted as a universal format by broadcasters after its applicability to electronic news gathering became apparent.

Standards converted materials can enrich instruction in a number of ways:

1. Confusion for faculty and students is minimized, since they never actually encounter a PAL or SECAM tape. Only converted duplicates are made available for their use. Videotapes can therefore be made available for a wider variety of instructional and enrichment applications.

2. Where necessary, videotapes can be edited. While PAL and SECAM videotape editing equipment is available, its purchase would border on the ridiculous where most universities and colleges are concerned. However, NTSC 3/4" or 1/2" editing systems are standard equipment in many learning resource enters today.

3. Interactive videotape becomes possible. All cassette format manufacturers provide programable search controllers ranging from simple devices that will store a few segment locations on a videotape to more sophisticated devices that require the use of a personal computer. The more sophisticated controllers allow selective branching and repetition, depending on the skills of the student. The usefulness of this technology in language learning is obvious. However, all of these systems assume the student is using NTSC video.

Interactivity reaches new heights with the use of the laser videodisc. However, interactive videodisc programs in this country are strictly NTSC, and foreign materials must be standards converted if they are to be included in this activity.

4. Instructional Television Fixed Service (ITFS) and continuing education programs can deliver instructional materials to students by microwave, by local cable systems, and by mail.

5. Colleges and universities who belong to consortia can have access to materials they would otherwise never enjoy. They may also have greater collective bargaining power to negotiate the use of additional programming.

6. Materials that are prepared in the United States can be sent to colleges and instructional outlets overseas without worry about whether the consumers in that country can locate compatible NTSC equipment to view the tapes.

The use of videotape standards conversion is not without its challenge, however, some of which make it difficult for a college or university to consider this approach.

All other considerations aside, the issue of international copyright law is the single biggest obstacle to wholesale conversion and duplication of foreign materials. Many materials presented for conversion will have been purchased at retail outlets overseas with the intention that they will be used for the purchaser's private use. No license is given to duplicate the tape or to display it publicly. In fact, many of these tapes contain disclaimers expressly forbidding duplication or public performance. Faculty and students need to understand that the rights to distribute these materials in the United States, in NTSC, may already have been assigned to another party. Duplication of these materials without this party's permission would be a clear violation of the copyright law. Similarly, material that may have been recorded off the air on a home VCR in another country is still subject to the international copyright restrictions, even though copyright disclosure statements may not be present on the tape.

Some suppliers are protected by the fact the PAL and SECAM tapes are difficult to duplicate. Since the end user usually has equipment only for playback, there is little fear that duplicates will be made in sufficient quantities to harm the supplier's investment. Standards conversion changes all that by making it possible to distribute several NTSC copies from a single PAL or SECAM tape.

Recently, there has been a number of authorities on copyright law who have suggested that there is some latitude for using materials with foreign copyrights as part of instruction in this country. At the May, 1984 meeting of SCOLA International at Creighton University, Rick Brown, an attorney for the Society for Private and Commercial Earth Stations (SPACE), indicated that such materials could be used without compensation if their only use was for face-to-face instruction. This would still rule out general duplication and archiving as part of a university library system.

A second difficulty with standards conversion may be the acquisition of the service, which can be done by either seeking the services of an existing facility or by purchasing the equipment and doing it on site.

If a university decides to do its own conversions it may elect to experiment with an optical conversion system that is relatively easy to construct. This method involves using a multi-standard videotape player and monitor to display the tape while a simple NTSC color camera is focused onto the screen of the monitor. An NTSC videotape recorder then records the cameras image. (See Appendix A.)

Optical conversion is relatively inexpensive to implement, if one considers only the equipment, since nothing more than an inexpensive camera and an NTSC recorder are required--items generally found in most learning resource centers.

Many older black and white videotapes were recorded with "random interlace" video cameras before 2:1 interlaced scanning became standard practice. These tapes are frequently transferrable only through optical conversion techniques, since current digital conversion equipment assumes the 2:1 system. However, many who have tried to implement this system have experienced problems that they feel limit the use of optical conversions to occasional use only. One problem is the extreme distortion that occurs in luminance and chrominance signals. This happens because the transfer characteristic, or "gamma," of the picture tube does not match the characteristic of the camera pickup tube. The result is an over-emphasis of detail in the white portions of the picture and a clipping of detail in the black portions. Color rendition suffers because the spectral emissions of the picture tube do not match the response of the pickup tube. Since simple color balance corrections are not enough to compensate for this difference, profound errors in picture colorimetry will have to be tolerated. Optical conversions also never adequately eliminate the 10 Hz flicker that results when the 50 Hz videotape is photographed with a 60 Hz camera. After a few minutes, this flicker can become very tiring. Cameras with inexpensive vidicon tubes can reduce this flicker, but the image is further impaired by poor pickup tube performance.

Most learning resource centers will find that these and other difficulties indeed limit the usefulness of optical conversions. However, where digital standards conversions are not feasible at any price, this may be a useful solution.

Digital standards conversions will result in very satisfactory NTSC duplicates, but most universities would not purchase the equipment to make these conversions because the costs are unjustifiable for their need. A television standards converter is a very sophisticated, and, therefore, very expensive, digital video processor that relies on huge amounts of storage to do its job properly. In practice, as many as six fields of video are stored at any one time so that enough data will be present to make a smoothly interpolated conversion. Digital sampling techniques are employed, usually at rates above 12.5 mHz, with one sample each for luminance and the two chrominance channels. The sample width in each case is 8 bits.

While there are cheap converters on the market that meet less stringent operating specifications, our experience suggests there is no shortcut to a proper conversion. Every tape that comes out of the process will be degraded at least by one generation and there will be other slight amounts of degradation introduced by the converter. This can be a serious matter for programs that do not start out with the best of quality. In order to minimize degradation, processing equipment must be as "transparent" as possible. The cost for an adequate converter, therefore, will start about $90,000 and rise to about $230,000, depending upon the converter's quality and the number of standards it is intended to serve.

The converter's purchase price, however, is not the only expense to consider. Ancillary equipment, physical plant considerations, and personnel costs can be significant as well:

1. Videotape machines will have to be purchased for every videotape format and television standard that is anticipated.
2. Timebase correctors, sync generators, and related terminal equipment will be necessary if the converter requires that input signals be fully synchronous and stabilized before conversion.
3. Adequate picture and waveform monitoring is necessary to verify the quality of the conversion and to locate trouble spots.
4. Other equipment, such as color correctors, image enhancement devices, and processing amplifiers may be required to compensate for any defects the PAL or SECAM original that might make them unsuitable for duplication. This is an important consideration, since most videotapes used for instructional purposes will not be of the highest quality when they arrive at the institution. Our experience has been that most of these tapes require additional corrective processing.
5. Fiscal planning is necessary to allow for periodic replacement of the equipment. This is essential because of the very volatile nature of solid state electronics. While equipment would not be replaced just because it is old, eventually components that are no longer manufactured will fail. Manufacturers may cease production or support for a product. Replacement schedules for this equipment should be based on those that are typical of other digital video processing equipment.
6. A properly-equipped repair shop with technicians who are thoroughly conversant in NTSC, PAL and SECAM video as well as digital video processing techniques is a must. This latter consideration is extremely important because all standards conversion equipment firms are based in countries overseas. Some have little U. S. sales and service representation, making it impractical to send the equipment back to the manufacturer for repair should problems develop. Therefore, the technicians who service this equipment must be able to do a considerable amount of sleuthing on their own.

Our experience has shown it doubtful that sufficient quantities of instructional materials will normally be presented for conversion to justify the purchase of the equipment solely on an income-producing basis. The institution that decides to purchase will have to do so in part because they are committed to the flexibility that such an investment will provide to academic programs on the campus.

A more practical method of obtaining digital standards conversions would be to simply purchase the conversion service, rather than the equipment. The following guidelines in locating such a service are suggested:

1. Look to other educational or industrial facilities that have conversion facilities already in place. Commercial vendors can be used, but they will be very costly because of the broadcast and high-end industrial clientele they normally service. Commercial vendors usually charge between $150.00 and $300.00 per hour for conversion of materials originating on video cassette. Rates for 1" or 2" originals or copies will be higher.

2. Seek membership with colleges or universities in consortia that deal with international videotape and that have standards conversion capability within its membership. Your institution will be able to participate in some significant trends in instruction. But even more important will be the availability of educational materials and services at costs that could not be approached in any other way.

3. Do not plan to convert everything you own to NTSC video if you cannot establish a great need for it. This is not an issue that must be decided all one way or the other. As with every program, some advance determinations need to be made as to whether materials are needed for general use within the curriculum, or whether their use will be occasional or rare. It will be more appropriate to keep multi-standard tape equipment on hand to meet the occasional and rare need. On the other hand, if the distribution need is great, or if the original tape is irreplaceable, standards conversion to NTSC may be appropriate.

4. In planning your curriculum, give the conversion facility adequate turn-around considerations. Our experience has been that one week within the facility is generally required to meet small-quantity needs. Orders for large quantities usually take somewhat longer because the facility must free up equipment from other uses to fill the order.

5. Ensure copyright compliance by providing *written* permission from the copyright holder to do the conversion. Many facilities, fearing they may be the target of legal action, and not wanting to sour any relationships they have with foreign program-

ming suppliers, will not perform the conversion unless this permission can be shown.

6. Develop a personal contact with a responsible person at the conversion facility. This will make it easier to pass information between your institution and the supplier and guarantee that your needs will receive more personal attention.

With these considerations set forth, let us look now at how the University of Iowa is handling the issue of international videotape use on its campus. From the beginning the University of Iowa has been fortunate to have an administration that is dedicated to providing its students with diverse international education. On the subject of foreign language study, University of Iowa President James O. Freedman stated in his inaugural address that

> . . .The study of a nation's language often reveals the values of a foreign culture more tellingly than a dozen treatises. It illustrates the intimate bonding that exists between style and content, between cadence and substance, between idiom and national character. It makes clear that human beings are as much the creatures of their language as they are its makers.

He went on to say that an international education improves the chances that tensions among nations can be reduced by resorting to peaceful forums--academic, cultural, economic, and political--rather than to force. International education is, therefore, an investment in international understanding.

This point of view is shared by a number of university departments that have been very aggressive in their use of foreign video material in all areas of study. Most of these are in the College of Liberal Arts and consist of the various language departments (French, Italian, German, Portuguese, Russian, and Spanish), the Language Media Center, the Department of Journalism and Mass Communication, and the Department of Communication Studies. There is also a significant number of requests for international tape capability that come from the College of Medicine and the University of Iowa Hospitals and Clinics. Most of the medical applications are for exchange with colleagues in other countries or to pass test results back and forth between hospitals working on similar problems.

Because of the large number of these requests, and because a large volume of PAL and SECAM video tapes is involved, the University decided to place a high-quality videotape standards conversion facility on the campus. The location chosen for this facility was the University Video Center, where the bulk of general campus video work is done. The Video Center has been enthusiastic about this opportunity, since it is our desire to be involved in innovative uses of video technology in instruction.

The majority of the staff of the Video Center are professionals and all have several years of experience in their field. Even so, the equipping of the facility and the training of the engineering staff to handle it has taken substantial effort. The Video Center currently is able to handle all cassette formats in NTSC, PAL and SECAM. In addition, 1" and 2" videotape is available for NTSC. Shortly, 1" videotape in PAL and SECAM will be added. (See Appendix B.)

It is not the intention of the University administration to require that all videotape equipment outside the Video Center be NTSC. Many of the departments in the College of Liberal Arts have access to one or two multi-standard machines that they use to screen incoming video tapes. However, the tapes chosen for use in the classroom are generally sent to the Video Center for conversion to NTSC before being made available to the faculty and students.

Although the incoming videotape can be one of several formats, the on-campus use of videotape is essentially limited to 3/4" cassette and standard-play VHS. This standardization of tape formats is advantageous to the University because it minimizes the maintenance overhead in spare machines and parts, and repair personnel. In also helps ensure compatibility between university departments.

The departments in the College of Liberal Arts are using multi-standard video in a number of diverse and aggressive ways. For example, many times visiting faculty will come from other countries to teach at the University of Iowa for a semester or an academic year. Material they have produced in other countries will be used in their classes, so the originals are brought to the Video Center for conversion. The resulting duplicates become work copies for classroom use, while the PAL or SECAM original is protected from harm.

Occasionally lecturers from other countries will fly in just for the day to give a lecture. In these cases, conversion is generally *not* performed. The departments that sponsor these lectures keep a number of multi-standard machines on hand to meet this need. However, if the department informs the Video Center a day ahead of time that one or more NTSC copies of a lecturer's materials are needed, the schedule is altered to accommodate this need.

In the above two cases, copyright issues are straightforward and are handled by the professor, since the material used is either programming for which the professor holds the copyright, or for which permission has already been given for public showings.

Also, the fact that face-to-face teaching is always involved satisfies most other questions of copyright.

There are some activities on the campus, however, where the issue of copyright is paramount. For example, Professor Charles Altman of the French and Italian Department and James Pusack of the German Department, as well as other faculty in the language departments are involved in a program called PICS, Program for International Communication Studies. Materials in PAL and SECAM are gathered from several countries, including France, Germany, England, Belgium, Italy, Iceland, Basque National Government, Spain and Australia. This year materials will also be added from Brazil and Argentina.

Under this plan permission is secured to copy materials off the air on home-type VHS videotape recorders in these countries. The tapes are then sent to the United States where they are converted to NTSC and the required number of copies delivered to the various users. Currently these tapes are used in numerous second-year, conversational, and civilization classes in the language departments, as well as in specific international courses in the School of Journalism and Mass Communication and in the Department of Communication Studies.

As the project progressed, however, an agreement was reached with officials of at least one government that would permit the University of Iowa to act as a conversion/duplication service for these programs. Duplication masters of excellent quality are delivered to the University, which will archive the originals and prepare copies for our internal usage. The government involved will make other NTSC copies available to schools, universities, cable systems and others who may have an interest. The obvious advantage in this approach is that much more material is available now for use in this country, and the quality is much above what could have been recorded off the air in someone's home.

Yet another advantage comes from the fact that the rights to most production in some European countries revert to the government within three years after the release of the program. This means that agreements with these governments will eventually provide access to most of the material produced in that country. It should be noted here that not every foreign supplier, not even a majority of suppliers, has indicated an interest in allowing us to use their materials and many of those who are interested still demand terms that cannot be justified by the University. However, the key to our initial success has been the aggressiveness and negotiating skill of our language faculty, which has resulted in permission to use materials we would otherwise not enjoy. It is also our expectation that cooperative efforts with other universities will allow us to jointly negotiate the use of an even larger amount of video materials.

An even more ambitious project involves the conversion and *subtitling* of PAL and SECAM materials. Under this plan the suppliers involved will provide materials to the University that are similar to those used in the PICS project. The Video Center will prepare a standards-converted 1" dubbing master, a VHS timecoded editing workprint and an audio cassette of the soundtrack. The audio cassette will be given to the University of Iowa Translation Laboratory, who will then make a transcription of the sound track. From the transcription they will prepare captions on personal computers operating as word processors. These captions, together with addresses extracted from the timecode workprint, will be sent by modem to the Video Center, where another computer will automatically include the titles with the video signal from the 1" dubbing master, according to the addresses from the timecode data.

We are not entirely inexperienced in this type of project. One writer from Iceland, who was participating in the International Writers' Workshop at the University of Iowa, arranged to have the PAL television broadcast of one of his plays standards converted to NTSC and re-recorded with English subtitles. We learned a lot from this experiment that has helped us perfect our plans for the more substantial subtitling effort to come.

Another major effort is being pursued by the Video Center and the Language Media Center in behalf of the Russian department at the University. For a long time there has been a scarcity of materials from the Soviet Union that will allow study of that country's language, customs and political perspectives. However, some of this material is available through a series of three satellites that circle the earth in the same elliptical orbit and are active over the northern portion of the globe. These satellites, identified as the Molniya group, give essentially 24 hours per day of Soviet television programming, interrupted only occasionally by the necessary changeover between satellites. For some time now, Creighton University in Nebraska, under the direction of Lee Lubers, has demonstrated the feasibility of using an inexpensive tracking system to capture broadcasts from these satellites. This system uses a locally-fabricated antenna mount and an Apple computer. The tracking software is written in BASIC and was done by Lubers' staff. The video material received from the satellite is displayed on a SECAM television receiver and is then rebroadcast on the campus cable system using the optical conversion system described above.

The University of Iowa will follow the Creighton model and install our own satellite tracking receiver. As with the Creighton system, the antenna's polar mount will have to be modified to allow azimuth and elevation adjustments. The video received will be recorded on a SECAM videotape recorder for screening by Russian department faculty. Those portions of the tapes in which they have interest will be converted from SECAM to NTSC for use by faculty and students. As regularly scheduled programming that is of interest to the faculty becomes identifiable, it will be standards converted as it comes from the satellite receiver and recorded directly onto NTSC videotape. There are also unused transponders on this satellite system, opening up the possibility that other countries, some of them in Central Europe, can arrange to uplink their own PAL and SECAM materials for reception in the United States and other portions of the Northern Hemisphere. When this happens the University of Iowa will be able to utilize these materials directly, once copyright issues are settled.

The position of the University of Iowa regarding copyright in these projects is to secure permission, in writing, from the copyright holder for all materials used. Since violations of international copyright law could possibly have political as well as legal and financial implications, we feel it is essential to live well within the letter and spirit of the law. This attitude has clearly worked to our advantage, since it has given our overseas suppliers of videotapes unmistakable evidence of our good faith in dealing with them. Our expectation is that our access to other PAL and SECAM materials will increase as other foreign producers see the exposure their associates' products are getting in this country.

It is true that our desire to avoid the risk of overstepping the bounds of the copyright law may mean that some materials obtained by faculty may be unusable on our campus. Yet, in the long run, the faculty will benefit from the vast amount and diversity of material that has become available once copyright clearances have been obtained.

In conclusion, it is our belief at the University of Iowa that the use of foreign videotape material is an essential element of our goal for an international education for our students; and the scope of our commitment dictates that we have the permission and technology to convert and distribute large amounts of PAL and SECAM material in NTSC. Through the enthusiasm and aggressiveness of our administration, our faculty, and our Video Center staff, we expect to continue to rise from the frustration of our early beginnings to the point where we truly offer our students the international perspectives that our present world circumstances demand.

Notes

[1] The system used in the United States today was adopted by the government during the 195O's upon the recommendation of the National Television Systems Committee (NTSC), a committee of the FCC. NTSC is also used in Canada, Greenland, Japan, South Korea, Tiawan, the Phillipines, Central America and parts of South America.

[2] PAL (Phase Alternation by Line) was adopted for use in the United Kingdom, much of Western Europe, mainland China and parts of South America and the Middle East. SECAM (Systeme Electronique Couleur Avec Memoire), in one variation or another, is used in France, Eastern Europe, Russia and parts of the Middle East. There is also a small amount of SECAM usage in areas of Central and South America.

[3] The ten tape formats we encounter regularly are: 1/2" EAIJ open-reel, 3/4" U-matic, VHS (SP, LP and SLP modes), BETA (types I, II, and III), 1-inch Type "C", and 2" Quadruplex. Fortunately, PAL/SECAM recordings in VHS and BETA are made in only one speed.

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APPENDIX A

Considerations for a Simple Optical Conversion System

A simple optical television standards conversion system can be constructed using a number of components readily available in most learning resource centers. First of all, a videotape player and monitor in the appropriate standard(s) are necessary.

Select a monitor that is noted for its stability and image consistency. Make sure the monitor employs a high-quality DC restoration or black level clamping circuit. Monitors which suffer from constantly changing color or brightness performance will adversely affect conversion quality.

The monitor should also have small screen (13 inches maximum) with a picture tube that is as flat as possible. The small screen will shorten the distance the camera must be placed from the screen to guarantee that the entire picture, including the corners, will be in focus. Monitors with very curved picture tubes also make proper corner focus difficult.

If the converter is to be used only for black-and-white transfers, you might consider purchasing a monitor that uses long persistence phosphors in the cathode ray tube, such as those used in computer terminals. The lag characteristic of this phosphor will reduce the 1O Hz flicker inherent in this process.

Secondly, choose a camera with a single, stripe-filter vidicon tube. Vidicons display a considerable amount of image retention ("ghosting"), and this storage characteristic will minimize the 1O Hz flicker that saticons, lead oxide vidicons, and other high-quality pickup devices would otherwise display. A general rule of thumb is that the cheaper the camera, the less flicker will be noticeable.

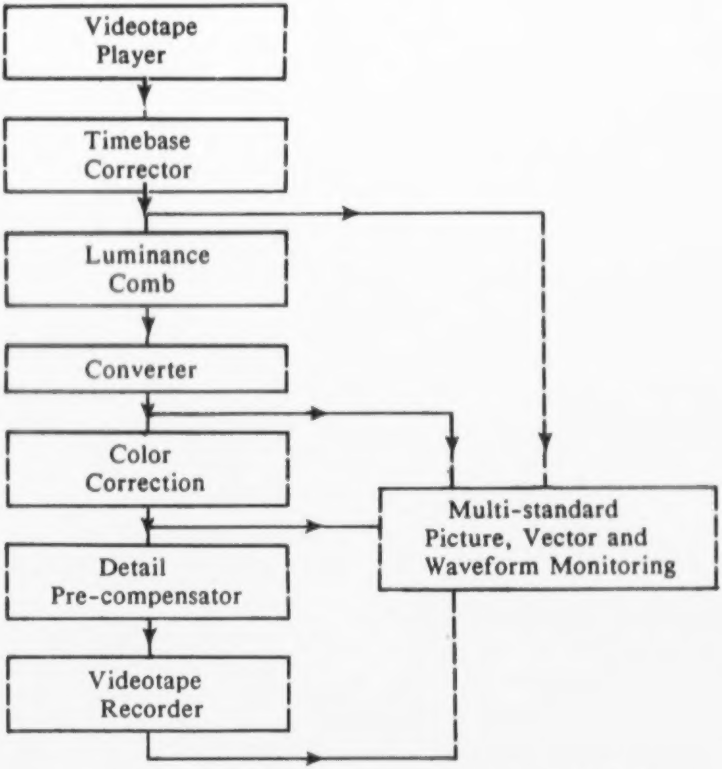
The camera and monitor should be located in a room that can be darkened to avoid reflections from nearby objects. The camera should be placed perpendicular to the center of the monitor screen. The distance between camera and monitor should be as great as the zoom lens will allow to minimize edge distortions and keystoning.

Adjust the camera for a proper exposure on picture peak-whites. Adjust the black level, or brightness control, of the monitor for slightly more brightness than normal. This will improve the camera's ability to see detail in dark picture areas. Experiment with the iris and black level controls on the camera, as well as the brightness, contrast and color controls on the monitor to get the best picture.

You will find that proper color balance is difficult to achieve using the camera controls. If a qualified technician is available, you may be able to improve colorimetry somewhat by having the picture tube drive and screen controls adjusted.

APPENDIX B

University of Iowa Video Center
Standards Conversion System


Videotape Player
Timebase Corrector
Luminance Comb
Converter
Color Correction
Detail Pre-compensator
Videotape Recorder
Multi-standard Picture, Vector and Waveform Monitoring

Videotape formats used at the University of Iowa Video Center

NTSC	PAL/SECAM
1/2" EIAJ open-reel	BETA
BETA (I, II, III)	VHS
VHS (SP, LP, SLP)	3/4" Standard-band
3/4" U-matic	1" Type-C (to be added shortly)
1" Type-C	
2" Quadruplex	

Computer-Assisted Language Instruction and the Language Laboratory

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Introduction

Computer-assisted instruction is a vast field with many varied aspects. One important facet is hardware. It is not the purpose of this paper to deal with this particular facet, although there are certain implications for language learning that are implicit in the topic: the question of compatibility of machines, the choice between systems which use icons (images) to indicate functions--as opposed to written commands, and the pertinence of the "mouse" (a gadget which allows manipulation of programs without typing).

Additionally, an assumption has been made in this paper: that the software that is most likely to be of interest to the language laboratory situation is not that available on mainframe computers, nor on minicomputers, but rather software designed to function on microcomputers. Micros will probably dominate in language laboratories because they are affordable, readily available and accessible. They are not necessarily better for language learning purposes than the larger computers, but because of the above features, they are generally regarded as more appropriate.

Part One: Past and Current Problems

One of the newest pieces of equipment gracing the up-to-date language laboratory these days is the microcomputer. It is fashionable, intriguing, and much admired. It represents the advance of technology, the wave of the future. It will, without a doubt, greatly enhance language learning. It might, whisper a few timorous voices, replace teachers altogether.

So it is said of the computer; so it was said of the language laboratory itself in its heyday. The stereotypical language lab, however, fell from favor. Fashion changed, admiration disappeared; far from replacing teachers, the lab rusted away quietly, rarely visited either by teachers or students. Far from enhancing language learning, say the current gurus, it only encouraged rote learning, and if anything, retarded the acquisition of true communicative skills.

The decline of the language laboratory was perhaps, in the long run, its salvation. Where dedicated teachers and technicians were truly interested in somehow exploiting its potential, it reformed, regrouped and emerged transformed into a learning center offering technological tools which helped to individualize teaching methods and which responded to different student learning strategies.

However, the main cause of the decline of the language laboratory is also the main problem posed by CAI:[1] machines without content, hardware without software, rigid programs usually not open to modification by teachers. If computer-assisted language instruction is not to follow the sad path of the language laboratory (and renaissances are, after all, not inevitable), the question of software must be examined closely and objectively.

To acquire hardware, given the existence of funds for such purposes, is a relatively simple matter. Purchase orders are sent off, and eventually the machine in question arrives, complete and hopefully functioning well. To acquire software, on the other hand, is not simple at all. There are as yet few if any comprehensive listings of CALI[2] software; even if such a list could be acquired, it is impossible to judge the quality of the software without looking at it. Let us suppose that the author or publisher of some software is unusually generous or perhaps naive, and sends off the materials to be previewed. What then becomes quickly evident is that all too many of the programs available are of doubtful quality.[3] After a long search, some programs are found which might be of some use, given a few modifications. Such modifications, however, are well out of the reach of the average teacher, who is neither a programmer, nor has access to funds to pay programmers. The same problem occurs if the teacher has good ideas for programs suitable to his or her situation, but has neither the time to program (if that skill exists) to any degree of sophistication beyond mere page turning, nor funds to pay for such programming.

Why do such software problems exist in our field? Everyone is aware of splendid software for other disciplines, especially in the sciences and for recreation or business usages. The answer lies in part in the beginnings of language-oriented CAI.

The first CAI programs, which were created for mainframe computers in the sixties, were designed for the sciences. Scientific learning, at least at the secondary and pre-graduate levels, is a very objective, fact-oriented approach, approximating what is generally referred to as programmed learning. Learning occurs step by step, experiments are made by varying controlled factors, answers are often true or false, and the judgment of errors does not vary from one teacher to the next. It is easy to see that CAI materials could easily be developed for a programmed learning situation, one in which the student progressed at a predetermined speed through defined steps, and usually without the intervention of a teacher who would simply gather the statistical results of the student effort and judge the level of competence or advise remedial work.

When minicomputers and then micros came along, the approach was not changed, merely refined, given the greater flexibility and accessibility of the new machines.

Unfortunately, when language teachers took their first halting steps in CAI, the only model available was the scientific one, and that was the one followed blindly for the most part.[4] While the creators of such programs were justifiably proud of having conquered the machinery and its arcane languages--for these teachers had to transform themselves into computer experts to write the programs--the reaction from their non-computer-oriented colleagues, not to mention the students, was negative in the extreme, and justifiably so. The mere mechanics of the thing were daunting: finding a terminal, learning the access codes, putting up with erratic delays in response time, are situations not very conducive to learning in any field. But to be trying to learn a language and find oneself forced into a lock-step progression during which a *machine* decided that you were or were not learning according to a predetermined rate of speed or success and forced you to review and repeat until you met its mysterious standards was a situation which neither most teachers nor students could really approve of.

That the sixties and early seventies were dominated by the structuralist approaches to language learning did not help. Pattern and transformational drills are useful and necessary tools for language learning, but unless well thought out, they often fall into mechanical, predictable and boring sequences. The use of a computer to implement these types of exercises often brought out their less appetizing aspects.

With the advent of the microcomputer, the mechanics of CAI improved. First of all, the stand-alone computer is easily accessible, it does not need to be located in parts of the school or campus obscure to the language student; one does not need to memorize code numbers and names to access a program. From the teacher's viewpoint, the creation of courseware became easier. BASIC was much easier to learn than the mainframe languages, and very soon, even BASIC could be bypassed: authoring systems appeared on the market which permitted the relatively easy creation of courseware or lessonware.[5]

Were the problems solved? Unfortunately, no. Few were the teachers, overburdened as they were and are, willing to spend the long hours, even months, necessary to acquire even a relative fluency in BASIC.[6] Authoring systems also required several weeks of intensive practice, and then continuing practice for proper use. They also had an built-in defect: being for the most part commercial programs, they were not designed with language learning as a priority. They were, in fact, basically science-oriented and encouraged the creation of courseware that bore all the defects cited for the original mainframe programs.

The picture was not, of course, entirely negative. Some mainframe programs such as PLATO produced courseware of excellent quality, but because of hardware costs, were relatively inaccessible to the vast majority of language teachers. With increasing research in artificial intelligence, programs which included parsing and automatic sentence generation, such as ILIAD (Bates), offered greater flexibility to learners, at least to those with access to the expensive hardware. On a more modest scale, and using micros, courseware such as CLEF[7] implemented the advantages of the larger systems, and developed principles to protect courseware from falling into mechanistic traps (See Appendix A). There is also a fairly large number of creative programs, limited to a few lessons, whose main drawback, aside from the usual problems associated with machine dependency, is that few people outside of those who frequent CAI conferences know of them.

All of these admirable programs are, however, of the type called "fixed" or "rigid." That is, unless users are programmers--and very skilled ones at that--they cannot modify them. Like textbooks and other commercially-produced tools, they must either be used as is, or not be used at all. (As a teacher, I know only too well that the only perfect textbook for my own purposes is the one I write myself. And I do not have the time to produce a textbook, which ideally must be changed regularly to keep up to date with new research findings into language learning techniques.)

Short of wrestling with authoring systems and all their drawbacks, what can the teacher who is interested in exploiting the very real potential of the computer do? One answer lies in an adaptation of the authoring system called a template, as a stand-alone tool, or in combination with a fixed program--"open-ended software" (Canale et al.). Where the authoring system is multipurpose and therefore cannot offer the flexibility that every discipline using it would like, the template has a very narrow focus, but within that area, offers much flexibility. A template is designed not only for one discipline, but with one particular facet of that discipline in mind: for example, the creation of reading comprehension exercises using a cloze or fill-in-the-blanks format. The template can do nothing else, but it does that kind of exercise in a very sophisticated manner, and, if the program is well designed, a teacher completely naive in respect to computers can create a CAI exercise in the time it takes to read the on-screen instructions and enter the data requested.

It can thus be said that many of the technical problems cited at the beginning of this paper are on the way to being solved. Commercially-available courseware and lessonware is becoming more and more sophisticated in the sense of being specifically adapted to language learning uses. Tools such as templates are being developed at a rapid rate to allow teachers more and more control over the materials they use.[8]

Part Two: Current Controversies

In terms of methodology, philosophy and general approach to computer use in language learning, two camps can be distinguished: the "tutorial" camp and the "non-tutorial" camp. The first is convinced of the usefulness of the computer as a tutor, to help students acquire linguistic competence through drill and practice of discrete points in morphology, syntax and semantics. Higgins, who disapproves of the approach, defines it as a system which "issues prompts and evaluates responses for narrow accuracy" (104). Odendaal, on the other hand, believes that "linguistic competence and communicative competence seem to be progressive stages on one continuum. Linguistic competence precedes communicative competence and must be attained before real communication is possible" (44). An alternative model is Stephen Krashen's monitor, in which conscious language learning modifies and improves the initial input acquired through acquisition-type learning. Others point out that irrespective of theory, there is a real demand from students for this type of grammar-based learning, if only for reinforcement (Sanders and Kenner).

The second, or "non-tutorial," camp is led by John Higgins and Timothy Johns, for whom the only valid approach to language learning is the communicative one. Higgins sees three basic types of non-tutorial programs: "generation by synthesis," "generation by analysis" and "exploratory CALL"[9] (105). Johns gives three principles which must govern these types of exercises: use of texts longer than the sentence or the isolated word, a game format, and non-fixed instructions that are generated in reaction to the interplay between the user and the program.

Higgins' first type is defined as "the creation of pieces of language by some random or automatic process and the learner's attempt to select from the language so created those bits which are interesting or significant to them" (105). Variations include parsing systems[10] which allow criticism of free input "in terms of ... truth as well as ... formal accuracy" (106).

The second non-tutorial approach is inspired by cloze-type exercises and involves the restoration of a mutilated text. Examples would include anagrams, jumbled words, shuffled sentences, or up to a completely blank text to be restored as in Storyboard (Jones). Sanders and Kenner describe language games such as "scrambled countries," "horoscope" and dialogue-type games inspired by ELIZA. Soria suggests visual feedback in such games: a student would type "the apple bounced around the boy" and the computer would illustrate the action. Using a form of interlanguage, Weible presents to the student a text in the first language, into which second-language items are inserted, with increasing degrees of difficulty, allowing the student to guess the item through contextualized meaning.

"Exemplary CALL" consists of sentences generated by the machine based on pre-programmed fundamental rules combined with free semantic input . When an unacceptable form is produced, the user is to guess the rule being applied to produce such a form and try to formulate a rule which would solve the problem (Higgins).

As much as I admire the European-based communicative approaches, I must confess a bit of uneasiness when faced with their advocates' insistence that communicative competence is the primary if not the sole goal. I also respect the autonomy of the individual language teacher. Language teaching is an art, dependent on the skills and the talents of the practitioner. A wide variety of supportive materials and tools should be available to teachers, but in the end, the teachers decide what works or does not work both for them and for the students. For many teachers, there is still a place for structuralist approaches. To suggest that only communicative exercises be developed on the computer is to deprive some excellent and successful teachers of necessary tools.

There is, however, one point on which the various factions agree: the social role of the computer has been largely overlooked. Researchers are now pointing out a spontaneous social use of the computer in which groups work together on programs, thus generating authentic language use in the classroom. This may happen through necessity (Canale *et al.*) or by accident (Sanders and Kenner), but it is not dependent on the format of the exercise. Such a fact must interest language laboratory directors, for if social use of the computer is not only efficient but also unavoidable, the configuration of the language laboratory may be affected. Room may have to be made for group work and the resultant noise level, while preserving spaces for those working individually.[11]

A final controversy concerns evaluation. Is CALI effective? Higgins points out that most research into the question so far has been rather nebulous and suggests that one reason may be that "... we ... use the computer in totally different ways from those in which we have used other components of tuition, and we will need to work out new parameters to evaluate them" (108). Other researchers, lumping together CALI and other CAI programs, have stated that on the whole, students do as well or better with CAI when compared with text, lecture or classroom training. Attitudinal studies have generally shown positive attitudes on the part of students (but not as much on the part of instructors) (Barnes). There are, however, more objective studies appearing (Merkel).

Part Three: Future Hopes

There is excellent CAI, both tutorial and non-tutorial, now available or in the design stages. What sort of developments does the future hold? Three possibilities are variation, integration and simulation.

Variation refers to the multiplication of template-type or "open software"-type of programs. Some time in the future, teachers may simply look up in a reference book of templates or in a "template bank" the ones exactly suited to their approach and student population.[12] Integration refers to the adding of voice and images to writing-dominated software. Voice-based learning, for example, already exists for phonetics and promises to develop interesting programs for syntax (Wagers). Research is being done on dictation templates and oral comprehension templates in which a cassette recorder is allied to the computer to help students practice auditory aspects of language learning.[13] Illustration by video, with or without branching, is also in use, and more sophisticated programs of interactive videotext such as TICCIT (Hendricks, Bennion and Larson) show the way to the future.

The further development of parsers will greatly enhance the flexibility and individualization of such programs. Parsers fall into two groups: one uses transformational rules and a limited set of semantic items to generate or recognize student-produced sentences.[14] The second does not deal with semantics but analyses the structures produced and signals anomalies based on a concordance within the program of anticipated erroneous structures.[15]

Finally, simulation is perhaps the ideal of the future. As Joan Rubin points out, "Interactive videodisc can begin to approximate a natural conversation where the interaction consists of a series of logical dependencies" (33). Students using integrated computer and videodisc facilities could experience and interact in the second culture without having to leave their classroom. Montevidisco is the prototype of the interactive videodisc (Gale). This system combines sound, writing/reading and motion pictures to place a student in a simulated situation, as "natural" as any classroom context could possibly hope to be. Students can walk through situations that would occur in "real" life, giving responses to stimuli produced by the video picture (say, a native speaker greeting the student); and instead of having a printed comment on the appropriateness or lack thereof of the response, students see the actual reaction of the native speaker. A frown from a person, even a two dimensional one, is much more effective than a line of print saying "Your response is not correct." Advances in technology should soon permit the obstacles, such as limited memory, mechanical complexity and excessive cost, to be overcome.[16]

What the future holds, therefore, is the development of language-oriented CAI much along the lines of the evolution of other materials for the language laboratory. The hardware remains basically the same, although refinements in terms of efficiency and esthetics are sure to come. The software, however, branches into a wide range of options from which teachers may pick, create or adapt materials suited to their teaching approach, philosophy, interests, and the learning strategies of their students. CAI would then bring to the language lab, or language learning center, a new dimension which would greatly enhance its efficiency.

Notes

[1] CAI (Computer-Assisted-Instruction) is the general term for computer programs whose main purpose is to help students learn, in any discipline. "Software" is the general term for any computer program, as opposed to "hardware," meaning the machinery.

[2] Two terms are used to refer to computer programs whose purpose is to help students learn languages: CALI (Computer-Assisted Language Instruction) and CALL (Computer-Assisted Language Learning).

[3] Evaluating software is not always easy. It is best to use an evaluation guide; one of the best comes from the *CALICO Journal*. See Robert M. Hertz, "A Software Evaluation Guide for the Language Arts." *CALICO Journal* 1.5 (1984): 21-23.

[4] Higgins points out that as late as 1981, one could read declarations such as: "Computer-assisted learning is essentially the same thing as programmed learning" (Higgins 103).

[5] "Courseware" refers to the content of CAI programs, where such content covers several different lessons or modules. "Lessonware" refers to the content of CAI programs that only contain one lesson or unit.

[6] Terminology referring to computer software can be confusing. A difference is usually made between "programming languages" developed for mainframe computers and general uses (APL, FORTRAN, etc); "authoring languages" for more specific purposes, such as home use or to create CAI materials (BASIC, PILOT), "authoring systems," whose only purpose is to create CAI materials, and without using a large number of commands, and "templates," which are defined below.

[7] CLEF (Computer-assisted Learning Exercises for French) is a joint project of the universities of Western Ontario, Guelph and Calgary. The courseware consists of 62 drill-tutorial lessons covering basic French grammar. It is published by Gessler in the U.S. In Canada, the Commodore version is distributed by the Language Laboratories, University of Western Ontario, London, Canada, and the IBM version (color) is distributed by D. Paramskas, Department of Languages and Literatures, University of Guelph, Guelph, Canada. CLEF is described in Paramskas pages 4-6.

[8] The potential of the template format is becoming recognized, and the call for the development of numerous varieties of templates is becoming more frequent. Lesgold, for example, sees the need to develop templates for adventure-type language programs.

[9] The British prefer the term "Computer-Assisted Language Learning" while North Americans generally refer to "Computer-Assisted Language Instruction," a commentary perhaps on the fact that while structuralist approaches seem completely discredited in Europe, they are still seen as valid alternatives in North America.

[10] "Parsers" are CALI programs which perform grammatical analyses of student answers, and give corrective feedback if the structures do not conform to grammatical norms.

[11] The same student reaction has been observed in working with video: a spontaneous group forming, and language being generated. Personal observation.

[12] For a description of a template for reading comprehension, see Mydlarski and Paramskas.

[13] Current research project of the universities of Calgary (D. Mydlarski) and Guelph (D. Paramskas).

[14] As in Bates and Soria.

[15] Research project of the University of Guelph (D. Paramskas).

[16] Templates for video and videodisc programs are now appearing on the market. Whitney Educational Services (San Mateo, California) offers "Whitney Interactive Video," described in Bibb.

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APPENDIX

Principles for Effective Language-Oriented CAI

1. A computer is not a book. There are things books do very well and much more cheaply than computers. The program being designed must be able to do something that books cannot do. Too often a CAI program becomes what is called a "page turner": You read the question, type in a response, and the computer says it is right or wrong, with no further information. You then turn the page to the next question. Any workbook with answers printed in the back can do the same thing less expensively.

2. The CAI program must respect individual learning strategies to the greatest extent possible. Options must be given to students to proceed at their own speed (by using a "foot" rather than an internal timing device), to request remedial help but not impose it (by pressing a key, students can access such help then return to the exercise), and to permit them to skip ahead or repeat with ease and no penalties. An additional individualization tool for language learning is the built-in dictionary that allows students to call up definitions or translations for words in the exercise, if the teacher judges that to be useful.

3. Error checking must be comprehensive and comments to the student should be non-threatening. Programs should distinguish between involuntary errors (i.e., hitting the wrong key, forgetting or adding spaces and periods--remember that the aim is to teach a language, not typing skills) and meaningful errors resulting from interlanguage strategies. Meaningful errors should elicit appropriate comments which guide the student to correct his or her own answer, and to learn from the mistake. It is vital that an experienced teacher design the error-checking routines, as only such a person can foresee the typical, anticipated errors.

4. The question of scores and statistics is a controversial one. Some students are put off by a score being kept, even if that score is not available to the teacher. A solution would be to give the student the choice of seeing a score or not. Statistics gathering is, to my mind, an unfortunate hangover from the early days of science-modeled CAI. It is useful for testing new programs, but continuous record keeping of mistakes, etc, has more disadvantages than advantages. For one thing, it removes what many students have stated to be one of the main positive features of computers: the privacy to make as many mistakes and learn from them without the rest of the class, or the teacher, sharing in the embarrassment. For another, it requires technical assistance for gathering the data, is complex for microcomputers,

and, finally, is unrealistic. Given all the other data that teachers have to deal with, will they even bother to look at the statistics except for curiosity's sake? If the statistics say that so many students have not mastered X grammar point, will teachers run to their offices and immediately re-work all their course plans?

Issues, Concerns, and Decisions in Planning a Language Learning Lab

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The use of laboratory installations to assist in second language acquisition is an established practice that has a tradition of some thirty years. Made possible by the development of the audio tape recorder, and promoted by Sputnik and the resulting government grants for foreign language education, language laboratories were installed in nearly every school by the mid to late sixties.

Today, however, many schools have no language learning facilities whatsoever, and others are faced with either replacing aging equipment or removing the labs altogether. These situations have been brought about by several factors. One is that the initial expectations for the then new technologies were not realized. In large part this was because software (language recordings) initially was not particularly stimulating nor effective. More importantly, budgets often allowed for equipment acquisition but not for repair and maintenance, nor for staff to administer the facilities. As a result, labs languished into various stages of disrepair, fostering a general conception among faculty and students alike that the lab was really more trouble than it was worth.

In contrast, many schools have vital and well-used lab installations. Both faculty and students view the lab as important in the learning process, and administrators are convinced that the labs are necessary and well worth the financial commitments that have been made.

It is not the purpose nor the scope of this paper to discuss the relative merits of language learning facilities. Studies and arguments can be found in abundance either for or against them.[1] Instead, we shall focus on the issues and concerns, as well as the required decisions in the implementation of a language learning facility, assuming that such a facility does indeed have a useful role in second-language acquisition. Briefly, we will discuss assessing needs, determining availability and appropriateness of technologies, and planning for equipment acquisition and media development.

Assessing Faculty Needs

The approach taken to assess a particular school's needs depends, to a great extent, on the person or persons responsible for installing and operating the lab. At most schools, this often consists at the very least of some kind of faculty committee. If a lab already is in operation, the faculty or other full-time director will wield a great deal of influence. However, beyond a small group of interested faculty, often there will be little advice or direction offered. For example, at large, research-oriented institutions, few faculty members have any interest in beginning language courses. At smaller schools, greater faculty participation can be expected.

Faculty needs, at least as they see them, tend to reflect what they are most used to. If, for example, the traditional lab classroom has been used, most will feel that it is important to provide more and better lab classrooms. Those who send their students to a free-study lab will probably suggest that better and more effective ways be found to support that approach. Nevertheless, we *can* describe some attitudes and needs common to all.

Generally, faculty feel that some kind of student work with recorded materials is important. Some, maintaining that faculty direction is critical when working with any foreign language materials, prefer to provide practice with taped programs as part of their own work with their students, either in the classroom or in a lab. Others prefer to keep the class contact time for themselves, and require students to attend the lab on their own. Some encourage students to work on their own with recorded materials outside of the lab (e.g., cassette copies at home).

Most faculty members also agree that student interaction with the materials, such as that provided by audio-active equipment, is more effective than passive listening. Additionally, some view the lab as an excellent facility for practicing for and administering oral tests. Attitudes toward newer technologies, such as videos and computers, vary greatly, depending on previous experiences. Where useful materials have been available, reaction has usually been very positive.

Finally, while not all labs provide a library of supplementary or cultural media materials, those that do find an appreciated and well-used service.

Faculty support is extremely important to the success of a lab. Thus, those responsible for the lab planning need to find a balance between giving the faculty "what they want," which might be heavily influenced by doing things the "old" way, and taking new approaches to meeting stated faculty needs and objectives.

Assessing Student Needs

The ultimate objective of implementing technology in the foreign language program should be to better serve the student. Not only must the technology be pedagogically suitable, but the students and teachers must *perceive* it as useful as well. It appears, based on our observations, that students today are more inclined to take the learning lab seriously than in years past. More than ever before foreign language educators have an excellent opportunity to utilize technology to assist them in the instructional process.

While students may have little knowledge concerning the kinds of approaches that are most suited for language instruction, they *are* able to provide insight as to what will motivate them to use the facilities.

First, and foremost, they will indicate that the materials must be stimulating, relevant to their course work, and readily available when required. There is a certain amount of attraction to new kinds of technology (such as computers), but in the absence of quality instructional materials, these become "old" fast. And if faculty members do not integrate lab materials into the curriculum, students will soon learn that the lab has little importance.

When students arrive at the lab, they need to find equipment that is not only functional, but that is reliable as well. They are there to study and learn, not to play the role of technician. In terms of functionality, they ask for flexibility in the equipment design, although few take advantage of more than the basic capabilities.

The very use of the word "laboratory" connotes a certain sterility, and all too often in the past language learning labs have lived up to that stereotype. The use of language is a human effort, and the centers where languages are to be learned should reflect a high degree of human orientation. Study positions need not be regimented rows of booths painted in "institutional" colors. Wood tones, carpeted floors, and soft but well-lighted study areas can all contribute to a student's sense of well-being while at the "lab."

Planning a lab must take into account the number of students that will be required to use the facility and the resources available. If lab attendance is required, all students should have adequate access to the materials. In large demand situations, this may require rethinking the notion of fixed study positions.

Assessing Needs of Other Potential Users

Over the past several years, we have seen language instruction (and learning labs as well) rise and fall in favor and popularity with students and administrators. As an exclusive language learning facility, labs are often vulnerable to budget reductions or to being eliminated altogether. One of the more common survival strategies among lab administrators has been to broaden the base of disciplines that use the lab facilities in order to protect against such fluctuations in "official favor."

Language learning facilities often utilize technologies that have applications in other than foreign language programs. Audio recordings lend themselves well to music appreciation courses, communications courses, and for recordings of lectures, colloquia, etc. in many disciplines. These courses often are high enrollment courses that will provide a steady clientele to the lab facility, thus further justifying staff, operating budget, and quality equipment.

Similarly, any attempt to integrate other than strictly audio technologies into the foreign language learning lab will meet with greater success, since other disciplines also utilize the equipment. Slide/tape programs, video recordings, and computer-assisted learning can enhance the instructional program for any discipline, not just foreign languages.

By adequately assessing these other potential uses of the lab and encouraging use of the lab by other disciplines, the lab will have a broader user base, and hence a more indispensable role in the school. This in turn will make it easier to experiment, expand, and enhance the technological support provided for foreign language instruction.

Assessing Physical Facilities

Ideally, a language learning center should be included in the initial plans for any school under construction. With proper planning, the necessary physical facilities can be provided for. Consultation with the architect at an early stage is very important. In addition, visits to other successful labs can provide insight as to directions that ought to be taken.

The key to learning lab installations is "flexibility." While one or more rooms might be "dedicated" to language learning equipment, the same rooms or others should be able to handle other learning activities. All language classrooms might have some type of basic equipment, such as tape players and large speakers or even individual headphones. One room ought to be specifically designed for group audio-visual presentations, such as motion picture or large screen video projection. Often forgotten is the need for adequate preparation areas (recording studio, tape processing and storage areas, and clerical work space).

In smaller schools, such as high schools, consideration should be given to combining the language learning facilities with the media center or library. In this way, the purchase of quality and useful equipment is justified by the use it will receive by many school departments. An alternative to fixed installations in the small school is a portable system that can be moved from classroom to classroom or to a media center and can be used by any department needing it.

More often than not, however, schools are faced with implementing or remodeling a lab in existing physical facilities. In such situations, planning becomes even more critical and consultation with the architects is extremely important. Rooms may be small, windowless, and isolated from each other and from the departments they serve. Here use of "unusual" spaces, such as corridors, and the softening of the atmosphere with adequate carpeting, furnishings, and lighting, can help overcome the inadequacies of existing physical space without expensive structural remodeling.

Budget Considerations

Two major considerations in planning the budget for any lab installation have to do with the size of the clientele to be served and the long-range funding picture.

If a school is large, and use of the lab facility is projected to be high, there is no choice but to make sure that an adequate budget for staff and ongoing supplies is available. As mentioned above, a greater amount of innovation may be required simply to meet the logistical needs of serving a large clientele. In addition, from a larger user base of faculty will come demands for various kinds of functionality.

If a school is smaller, and budget projections are doubtful, a simple, reliable, and somewhat traditional lab installation will make sense. If a school is small, but otherwise will have an adequate budget, more experimentation might be in order. In terms of initial planning and implementation of a lab facility, the budget should be adequate to cover all of the necessary costs, including construction, equipment, furniture, furnishings (such as plants, pictures, etc.), instructional materials, and staff (including technicians, tape librarians, student help, etc.). Anything postponed at this point will be much harder, perhaps even impossible, to obtain at a later date.

In the long range, planners should seek to establish a separate and somewhat autonomous budget for the learning lab. That is to say that while the lab should be responsible for meeting the needs of the various language departments, these same departments usually are much better served if the "purse strings" are attached to a higher administrative level (such as a dean's office) rather than with one specific department.

Perhaps a brief word about "politics" is in order here. The administrator of a language learning lab should recognize that it is indeed a service facility that must work with all languages and perhaps even other disciplines. As such, he or she should seek to establish the lab facility as a department by itself with no strings to one single discipline. Input from all disciplines via an advisory committee is an excellent way to maintain proper perspective, but the administrator will be able to properly operate the facility only if he or she has a somewhat autonomous hand in doing so. In many situations, achieving this status will not be easy. But a good lab administrator must also be a good "academic politician" and should make every effort to achieve a respected status among the faculty in order to serve the lab's "constituency" more effectively.

In summary, five major areas must be considered in assessing lab needs: (1) the faculty who must integrate lab material into their curriculum; (2) the students who must find the lab useful; (3) other disciplines who can also use the lab and thus broaden the school-wide user base; (4) adequate physical facilities; and (5) initial funding and on-going budget projections.

Assessing Hardware Before Assessing Software

Although the instructional materials to be used in a learning lab are key to its success, we find it both useful and necessary to assess first the available technologies. The primary reason for this is that hardware, or the implementation of new technologies, seems to have far outpaced software development. Rarely does one find a specific instructional program that has been developed, even in theory, before appropriate technology has appeared.[2]

Once appropriate equipment has been acquired and installed for use, faculty members should be encouraged to experiment and develop instructional materials that will lead to educator as well as publisher acceptance. Indeed, this is the same approach that was used with original language lab installations: the audio recorder was first developed, faculty experimented and developed materials, and publishers followed with professional and commercially available materials.

How To Assess Technologies

A logical first step in determining what kinds of technology are appropriate is to survey commercial equipment vendors. There are some caveats, however, in this approach. First, vendors tend to reflect "state-of-the-art" only to a certain degree. More often than not, any "innovations" are little more than cosmetic enhancements of old procedures. Several of the "new computerized" lab consoles are good examples.

Questions to ask about a commercial firm should include: Are they addressing the real pedagogical needs we have determined for our school? Is their equipment functional, reliable, and cost-effective? Is the company likely to be in business when we begin to have problems? Can their equipment be upgraded as our needs expand and/or as new technologies develop?

The second step is to survey technology in general. Since audio is of primary concern, one should assess the best media available for audio reproduction, such as open reels, cassettes, digitized sound, etc. In a similar vein, what means are available for the reproduction and distribution of audio material? One might consider standard recording materials, laser discs, and even fiber optics.

One should consider those kinds of technologies that are sometimes used in language instruction but that generally are not utilized to their full potential. For example, video has never really been applied comprehensively to language instruction. Interactive video (controlled by microprocessor technology) and recording of current foreign language programming (as permissible under copyright restrictions) are but two attractive possibilities. Variable speed audio recording, including "compressed speech," also offers potential.

Slides, and slide/tape programs not only are effective instructional media, but also are easier to produce than ever with new "instant" slide processors, computer-aided graphics design programs, and microprocessor controlled slide programming equipment.

Computer-controlled speech recognition and speech synthesis also are now coming of age and offer tremendous potential in language instruction. Random access audio is available for situations that require native-like speech modeling.

Determining Which Technologies Are Needed

One can easily be caught up by the dizzying array of new technologies and be convinced that all of them will offer untold advantages to any new lab installation. The truth of the matter is that software development will be slow in coming for many of the newer technologies, and changes in the technologies due to the development of standards or of even better equipment, may render a "hot new piece of equipment" obsolete within a very short period of time. Thus an appropriate balance must be found between the kinds of equipment that meet current definable needs, and these that logically might offer potential for foreign language instruction somewhere down the road.

At this point (1984), it would appear that equipment considerations fall into at least four major categories:

Audio: While the use of audio is considered a "given," the methods used for presenting audio instruction are not, and must meet the specific needs determined by each school. For example, does the situation suggest or even require a "circulation" system, whereby students may check out tape copies in a manner similar to that of a lending library? Or is there enough space to provide fixed study positions? What means of audio distribution will be used: remote access retrieval or individual copies of materials; open reel or cassette or digital recordings; or linear or random access audio segments?

If a circulation system is desired, how will tape copies be produced, stored, and managed? Where will students work with those copies? Will there be an adequate budget to pay for quality tapes and tape production equipment? If fixed position labs are provided, how much control will students have over their materials, how flexible will the system be in providing audio feedback (e.g., audio active headsets, student record features, etc.), and how much control and monitoring capability will be available to instructors and/or proctors?

Video: It is becoming increasingly obvious that video can and should play a major role in mediated instruction, including that of foreign languages. Its incorporation into language lab facilities is long overdue.

Here, however, one must determine to what extent video equipment will be integrated into the learning facilities. Will each student booth offer both audio and video, or will video be available only in a separate study area? Furthermore, will the video programs themselves be available as circulating items, or will they be retrieved remotely from master program decks? Will large screen viewing areas, or private group viewing facilities be available?

What format or formats will be used: 3/4", VHS, or Beta; standard or extended play; new videodisc formats? Will PAL or SECAM standards be available in addition to the NTSC standard?[3] And finally, will trained personnel be available to assist in the development and preparation of studio, location, and off-air video programs?

Slide/Tape: If slide/tape or just slide programs are to be available, will there be adequate facilities for individual or small group viewing? Can instructors use the materials in the classroom? Will there be support for development of materials, such as staff, graphics production equipment, etc? How will the management of a library of such materials be taken care of?

Computers: Again, will computer technology be integrated into the audio learning facilities? Will mainframe, mini- or microcomputer technology be the principal computing source? Can and will computers be used for administrative and control procedures, such as circulation control, tracking of lab use, control of audio-visual presentations, etc? Will the equipment be stand-alone equipment or will networking and resource sharing be implemented?

Will there be adequate research and development equipment available for faculty? Will trained staff be able to assist interested faculty in developing quality computer assisted instructional materials?

In summary, it should be evident that planners of any new or updated language learning facility should be ready to consider seriously those technologies that are wide-spread in their acceptance and use commercially, as well as in schools and training facilities. However, it should be kept in mind that a major ingredient in the successful integration of these new technologies into foreign language instruction will be the provision for adequate staff and budget to make the best use of them.

Planning for Equipment Acquisition

Preparing the "Political" Climate. Those responsible for planning and implementing a language learning facility should recognize that not only is their expertise required, but also their ability to publicize and promote the lab among administrators and faculty. Both of these groups must see a real need for the lab. While the former will look primarily for cost-effectiveness in terms of students served and the impact the lab will have across the school (i.e., all disciplines), faculty, on the other hand, will focus on pedagogical benefits.

If a lab is already in use, statistics should be carefully collected and analyzed, and then presented judiciously in any proposal for lab remodeling. Statistics should reflect current utilization of the lab. If attendance is up, they will provide an excellent argument for increasing the capacity and capabilities of the lab. The reverse might hold where statistics are poor. If no lab is in use, information from other similar institutions will be almost as helpful, but more public relations work on the part of the planner(s) will be required.

Acquiring the Equipment. The day finally comes when decisions as to regarding vendors and equipment must be made. If plans have been made based on functionality alone, then cost considerations now must be addressed. Commercially available labs may well be less expensive than custom designed installations. Also, with custom labs, there may be hidden costs associated with "debugging" an untested system. Nevertheless, such labs may offer a greater flexibility in terms of acquiring part now and adding or expanding capabilities later.

Once a decision has been made, and the acquisition process is under way, unexpected costs will arise. It is possible that promised features and delivery dates may have to be altered. Working with a reputable vendor will help alleviate many of these problems.

Planning for Media Acquisition

If the lab is a new one, basic media acquisition will be a major but essential cost. Consultation with faculty and textbook publishers will quickly reveal just what is available and at what cost. In addition, an on-going budget for media acquisition, replacement, and maintenance should be planned for from the beginning. Without it, the lab will quickly fall into disuse for lack of materials and functional equipment.

The lab should provide adequate in-house media preparation facilities. Some kind of recording facility, along with tape duplication and preparation areas should be considered a minimum for any lab. Cataloging and reference procedures should not be ignored, no matter what size the lab. All of these items require on-going staff and supplies budgets, in addition to any initial capital outlay.

Lab personnel may not be required to create and produce lab materials, but they should be able to assist willing faculty in doing so. Help in acquiring materials, in working with copyright laws, and in actual course authoring will go a long way toward making the lab library a vital teaching and learning resource center.

Finally, publishers must be encouraged to develop innovative and pedagogically sound learning materials that utilize more than just audio. If audio recordings have been able to develop as they have, other media should be able to follow suit.[4]

Conclusions

The foregoing summarizes the essential considerations, concerns, and questions attendant to any consideration of a language learning lab proposal. Each school will have different needs and capabilities, in terms of facilities, students, other disciplines and budget constraints. Additionally, rapidly changing technology will make it difficult to determine exactly the right mix of tested procedures and new, but potentially useful, ones. Only careful long range planning, including staff and media acquisition budgets, coupled with the promotion of lab use for other than language departments will help to insure a successful language learning facility.

Notes

[1] It should be noted that nearly all such studies suffer from procedural flaws, and thus are not particularly useful in deciding this issue. What labs do provide are additional contact time, native authenticity, more individual response opportunities, and the ability to compare native and student utterances.

[2] One notable exception was the experimental project conducted by Richard Barrutia at the University of California, Irvine in the late nineteen sixties. Barrutia developed a theoretical multi-media branched programming concept for teaching Spanish and enlisted the support of Ampex Corporation to develop the appropriate technology. Unfortunately, the technology was, perhaps, too experimental at the time. Ampex dropped its support and the project died.

[3] These are the three major video standards used around the world. The U.S. uses the NTSC standard, while most European countries use one of the other two. Programs produced or taped in a foreign country may be unusable on standard American equipment. Special playback units are costly, but necessary in order to take advantage of the rich foreign language programming available via video tape or even satellite.

[4] There is no reason that multi-media language learning programs should not be more prevalent. Such programs when properly produced and administered have been very effective. The technologies are now available for presentation in a learning center atmosphere.

A Role for the Language Laboratory

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A technological revolution is changing the way people do their jobs and live their lives; it is challenging educators in all fields to rethink learning strategies. Historically, the "language laboratory" has served as the porthole through which foreign language education has peeked at modern technology. This paper reaffirms the role of the "language laboratory" as an appropriate interface between technology and foreign language pedagogy.

The early evolution of the "language laboratory" was affected by two technological developments: the invention of a new sound recording technique and the launching of *sputnik*. Sound recordings gained improved quality and a new flexibility with the advent of the wire recorder, which replaced the mechanical groove-on-disc technique with an electro-magnetic one and which provided for the reuse of the medium, in this case, wire. Today mylar tape, to which is bonded various coatings capable of being magnetized, has replaced the wire. The launching of *sputnik* has had a less direct but perhaps more profound impact, for it stimulated an infusion of funds into foreign language programs at all levels through the National Defense Education Act. Encouraged to experiment with the new technology, language programs generated a considerable commercial market for language laboratory facilities. While the number of manufactures has declined during the seventies, the sophistication of the equipment has increased with the incorporation of space-age electronics.

A question arises, however, as to whether the language laboratory of the *sputnik* era, or even the one of today, for that matter, has lived up to the expectations generated by technology. Recent articles encouraging the use of computers in foreign language education caution one to avoid the past mistakes of the language lab. In addition, comments such as "What a waste of time!" often reflect the attitudes of students and faculty alike. In retrospect, it appears that the technology was not flawed, but rather it lacked an inspired adaptation to language learning. No one at the time of the inception of the language laboratory seemed to stress as stridently as the computer advocates of today the necessity for focusing upon activities uniquely complemented by the capabilities of the technology. Likewise, a lack of confidence in the technology often fostered negative attitudes in the teaching staff, attitudes which were transmitted to the students. For example, while a graduate student at the University of Wisconsin, I noted that of students from two sections of the same language course, those attending a lab session conducted with creative imagination expressed very positive comments, while those attending a lab session conducted with inattentive boredom expressed negative comments. Thus, I am inclined to believe that technology is essentially impotent without creative and imaginative application; and I remain convinced that the language laboratory, even with a somewhat tarnished image, presents the most logical location for establishing a technological support service for foreign language programs.

There are three questions that one might want to ask concerning the language laboratory: (1) What is its function and purpose? (2) What types of activities are best suited for the language laboratory environment? and (3) Why should the concept of "service" be associated with the language laboratory?

The function and purpose of the language laboratory is to be an extension of the instructor, a means for maximizing the use of the instructor's time. For example, an instructor working with a class on pronunciation exercises in a language laboratory setting can address problems of individual students without stopping the drill activities of the rest of the class. Even the more traditional language laboratory serves as a valuable tool that, when used effectively by instructors and students, can help in the process of learning a second language. Modern, computer-equipped facilities can function like a tutor, owing to the immediate feed-back response and lesson branching capabilities. But it should be remembered that, whether tool or tutor, the purpose of the language laboratory is to aid, not to replace the instructor.

The language learning activities that are applicable to a language lab setting are as varied as the creativity and imagination of the users. Some of the more common activities include pronunciation drills, grammar reinforcement exercises, listening comprehension exercises, oral testing, supplementary and review exercises. Each of these activities has multiple organizational possibilities.

In the context of today's technology it is most important that a language laboratory provide support services, so that the developmental activities of the faculty can be focused toward those areas uniquely complemented by the technology. It is hoped that those days are past when language teachers are given a tape recorder, are put in an empty room, and are told to record some exercises for use in the language lab; rather, language teachers should be encouraged to spend their time creating innovative materials which can be more effectively used in a language lab setting. The language laboratory staff (or director) should assume the responsibility for overseeing the technical aspects of recording materials and preparing them for use in the lab facilities. For example, it would seem more efficient to have an instructor preview a pre-recorded TV show, so that relevant sections could be edited to a second tape for use in the classroom, rather than for the instructor himself to record the show off the air and to bring the unedited tape to class. In effect, a lab with a support staff enables lab installations to be more sophisticated and complex and, therefore, more flexible and attractive to a wider range of users. An adequately staffed language laboratory with a "support service" philosophy can greatly facilitate equipment evaluation, the production and accessibility of program materials, and the maintenance of equipment. Equipment evaluation should include not only an investigation of the technical specifications, but also an investigation of the types of situations and applications for which the equipment is intended. For example, even when purchasing a tape recorder, one should consider whether a large speaker is required for classroom use or whether portability and a built-in microphone are required for interview recording. Different criteria should be used for evaluating classroom lab equipment than for evaluating library lab equipment.

The availability of audio production and editing facilities enables the language laboratory to creatively support aural comprehension programs that stimulate speaking skills at the first- and second-year levels. Several courses may require listening materials without benefit of text as part of class preparation (e.g., one course may require accessing these materials only in the lab setting, while a second may allow such materials to be taken home, and a third may develop special classroom lab tapes that contain quiz questions based on aural preparation, as well as contain phonetic and grammatical reinforcement exercises.) Video activities in the classroom and lab might include the video taping of skits and oral presentations for playback analysis.

The importance of adequate maintenance for equipment that is used frequently cannot be overemphasized, for in order to establish a credibility for its use, whether it be a slide projector or a language lab system, the equipment must be in working condition.

The language laboratory has two attributes that support its designation as a vehicle for combining technology with teaching strategies: (1) it serves as a common meeting ground for languages, and (2) it has always been associated with technology. In effect, it is a common denominator and a natural junction point for both languages and technology. The language laboratory would seem to be an appropriate area of support for language teachers who have already brought to their classrooms a personal interest in some kind of technology, such as shortwave radio or computers. But it is doubtful if the realization of the lab's potential can be reached without transforming the image and function of the language laboratory from that of a repository of equipment to that of a creative support service. The broadening of the language laboratory to include support services that reinforce the use of the available facilities is slow, evolutionary process that must be supported by a belief in the value of technology, by a visionary goal for the use of technology in foreign language education, by a sensitivity to the realities of the existing institutional environment, by institutional support for funding development, and by a pragmatism for implementing initial trial programs with the use of existing facilities or with minimal acquisition. Throughout this process an important function of the director would be to promote the active participation of the foreign language faculty and to remain sensitive to the types of technology that will sustain the highest interest among the faculty and students.

Technology is here to stay. The role of the language laboratory is to insure that foreign language education makes effective use of this technology. The successful integration of technology into the teaching of foreign languages will only be achieved by channeling visionary goals through the interests expressed by the faculty, i.e., by staying in touch with reality.

Developing the Listening Skill: Recommendations for Materials Design

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The overwhelmingly complex process whereby speech utterance becomes comprehensible has been the subject of abundant research by linguists and other language theorists. Their investigations, which deal inevitably with primary language acquisition, have attracted the attention of the second language teaching profession. Speculation on the implications that their findings might have for the teaching of listening comprehension has lead to a reexamination of long-held assumptions and a reassessment of the materials and strategies that have traditionally been used for developing the skill.

Such an undertaking is long overdue. It has been twenty years since Simon Belasco wrote that listening comprehension was the "most underestimated and least understood aspect of foreign language learning," criticizing the audiolingual method of the day as unfortunately "more lingual than audio" (491). Within the last five years even, listening comprehension has been dubbed a "forgotten stepchild" (Byrnes 1) and a "victim of neglect" (Morley 29) in the foreign language classroom. A survey of publications on the subject, however, reveals a flurry of activity. The work of many foreign language educators including Asher, Krashen, Winitz and Reeds, Gary, Byrnes and Morley signals a new direction in language learning methodology, a "comprehension approach," which emphasizes the development of the so-called "receptive" skills of listening and reading as crucial to the achievement of overall language proficiency. This shift of pedagogic emphasis away from preoccupation with production skills (speaking and writing) constitutes a fundamental change in the psychological and linguistic assumptions which have supported the language teaching methodologies of the past (Nord 1).

In November of 1983 the American Council on the Teaching of Foreign Languages convened a Symposium on Receptive Language Skills where government language specialists and experts from academia were invited to discuss issues concerning foreign language listening and reading, both the theory and practice of teaching and testing those skills. The proceedings of that conference[1] are important as a historical document of trends in methodology and as a resource of current thinking on the subject of listening comprehension--from the advocacy of its new role in the curriculum to the specification of the kinds of materials that will produce proficiency in second-language listening. Several articles present the theoretical base of the comprehension approach. Comprehension, the authors contend, is "the basic mechanism through which the rules of language are internalized" (Winitz quoted in Byrnes 319), and, therefore they advocate concentrating on training in listening and reading skills in the foreign language curriculum. If "input which is comprehended by the student is the primary source of the acquisition of the lexicon and grammar of the target language" (Krashen 264), then a central goal of instruction, especially at the beginning stages must be to "provide the correct kind and amount of input" (264). Treatment of the many practical implications of such an approach for materials and activities comprises the greater part of the volume. From this work and other recent publications on the subject, I have gleaned the recommendations that could have a major impact on the improvement of methods and materials for teaching listening. An examination of these recommendations should prove useful as a guide not only to materials producers but also to those involved in the evaluation, selection and adaptation of existing materials for classroom or language laboratory application.

Recommendations

1. *Students should be exposed to a great deal of listening experience at all levels of instruction.* Since listening is the single most frequently used skill in our daily language experience, instructional curricula and materials should direct their attention toward providing learners with more listening practice than has been previously the custom (Morley 30). Listening should be emphasized much more in the classroom and language laboratory (Byrnes 324). Courses, specifically with this focus, complete with texts and audiovisual programs, should be developed (Gilman 332). Krashen, attributing much of the success of the comprehension approach to the "input-rich" classrooms that are provided, argues that increasing listening time should be a major concern of the profession (272). From all of these positions emerges the general consensus that more listening materials should be produced and integrated into the basic foreign language curriculum.

2. *The language of the listening experience should be natural and authentic*--language as it is actually used, tied to a social and situational context, with a variety of topics and speakers. If our

goal is to prepare students to understand speech such as they will likely encounter in real-life situations, the texts we provide should approximate those anticipated experiences. Rather than the stilted, artificially manipulated language found in most traditional language lab materials, recorded speech samples of the following diversity of types are commonly recommended: casual chats, formal lectures, telephone messages, unrehearsed interviews, radio and television broadcasts, narratives, directions, demonstrations, instructions, commentaries, arguments, illustrated speech, blind speech, slow speech with its hesitations and wanderings, rapid speech with its reductions and elisions, one-, two-, and three-way conversations, etc. In order to approximate as closely as possible the randomness of language that the native speaker ordinarily encounters in daily life, materials from a diverse number of sources should be collected and presented as the raw materials on which the listening experience is based.

3. *The listening experience should be designed in such a way as to help the listener to succeed in achieving a significant measure of understanding.* Many factors affect a listener's ability or inability to deal effectively with authentic oral texts and to understand what he has heard. Success in listening comprehension depends to a large degree on the state of mind that he brings to the task--confidence or fear; interest or apathy; excitement or dread; anticipation of success or failure. Considering the difficulty of understanding native speech, it is no wonder that the typical foreign language student may react to the experience with feelings of anxiety and frustration. In the act of listening, language is not under the control of the listener in temporal terms. He is forced to deal with the barrage of sound as it arrives, unable to control its speed or delivery. He is much more confident in reading, writing or even speaking situations in which he knows that he does have time if needed to re-read, re-write or pause to think and re-formulate what he wants to express (Vanderplank). Confidence in listening is both rare and difficult to achieve. Fears of not understanding, of forgetting, or failing to catch the meaning of what is being said place listeners on the defensive as they "fend off a deluge of largely meaningless sound with reactions which are clearly detrimental to concentration and effective comprehension" (Morley 32). Such fears and anxieties which so often get in the way of proficient listening should be of major concern in materials design. Several techniques and strategies which have proved helpful are treated below:

a. Select manageable texts that students will be capable of understanding with minimal difficulty. Consider familiarity of subject matter, speed of delivery, length of utterances, complexity of grammatical structures and vocabulary, and the presence of redundancies such as repetitions, rephrasings, pausing, visual information and other aids to aural comprehension.

b. Match the task as well as the text to the student's ability level. Stages of second-language listening abilities have been designated by Harvey Taylor, materials designer and teacher of ESL. In his oft-quoted article, "Learning to Listen to English," he treats most thoroughly the "stage one" listener who understands nothing of the content of the "stream of sound." He is required to "tune in" to what he *can* recognize, e.g., volume and pitch variations, intonation and pause patterns, stress timing, etc:

> These differences and their meaning can be illustrated diagrammatically or in pantomime for multilingual groups or explained in the students' native language for monolingual groups before they know any English. Since in stage one the learner does not yet recognize much if any English vocabulary, these listening activities are for tuning in to some of the meaningful aspects of spoken English which parallel the vocabulary and grammar (42).

At stage two ("isolated word recognition within the stream"), the student is able to pick out certain previously learned vocabulary items from the general blur of spoken English, and as he moves on up the ladder to stages three and four ("phrase/formula and clause/sentence recognition"), tasks become more difficult. By the time he reaches stage five ("extended speech recognition"), a much higher order of information processing is required (41-42). Brindley has developed diagnostic tests and assessment procedures for determining learner ability levels--a listening proficiency rating scale for English. These tools, along with Richards' taxonomy of listening skills, make it possible to determine the specific skills most crucial for a learner to develop at a particular level (Richards) and to formulate objectives for a particular group of students. The ACTFL Proficiency Guidelines for Listening further characterize the listener at various stages of ability (Higgs).

Morley concurs in her recommendation to require tasks that progress gradually from simple to complex and that the student is capable (at his own level) of performing successfully. Structured listening lessons provide students with security. "Delimited, manageable tasks give them a chance to 'catch' a little at a time and gradually build to a point where they can handle increasingly sophisticated language situations" (101). Winitz and Reeds' ESL listening program exercises very strict control of the progression of difficulty of tasks. Their materials require the student to listen and touch the corresponding picture projected on a screen with four panels. Using a specially designed audiovisual device, the student hears a word, associates it with a picture and indicates his comprehension by touching the picture. At first there is only one possible response; the other three panels are blank. They describe the strategy:

> As the lesson progresses, old words learned previously are repeated as foils so that a correct choice must be made from two, three, and finally four projected pictures. The difficulty of choice is thus progressively increased as the newness of the items diminishes. . . . The program as it has been developed thus far, contains the following sequence of grammatical units: noun alone, noun with definite article, attributive adjective in a noun phrase, predicate adjective with linking verb. . ." (29-31).

This approach to developing listening comprehension might well be reexamined by those involved in the design of computer software for listening training.

c. Prepare the listeners for what they are to hear. The teacher or tape/narrator is advised to provide before the presentation of the listening passage some background information, vocabulary lists, guide sheets or other materials to help students anticipate what they will hear. Richards states that the goal of pre-listening activities is to prepare students for some of the new vocabulary they will hear and to activate background knowledge or "scripts." Script or schema knowledge is "what we know about particular situations, and the goals, participants and procedures which are commonly associated with them" (237). When scripts relevant to a situation are recalled during these exercises, it enables the student to interpret what he hears through inference. Guidance may also be given as to what to listen for, where to listen, when to listen and how to listen (Morley).

d. Help the student develop specific strategies for listening. Most students have never been taught how to listen, even in their own native language, which may account for the many problems they encounter in dealing with authentic oral texts. Various kinds of second language listening skills and the activities and exercise types designed for developing such abilities are identified below.

> 1. *Tolerating the unknown.* Taylor stresses the importance of developing this skill at the very early stages of instruction. The ability to keep on listening even when many words, phrases and clauses are flowing by and are not being understood is essential for building other listening skills. Meyer states:
>
> > When students hear a foreign word, name or location that is not recognized, they panic. . .

> and tune out everything that follows the unknown term. . . .a lethal interference mechanism . . . which can be overcome by teaching students to recover unknown words by continuing to listen and chaining the unknown items to familiar ones . . . . Such exercises teach students not to give up when they fail to understand every word and not to consider every word a high-information item (344).

2. *Listening for specific information.* Scanning and skimming activities, more commonly associated with reading, which require students to search out details or particular facts from oral texts can be performed at the earliest stages. Students might listen to a weather report to find out only how cold it was today in Denver or to a news broadcast to find out who won the election or to an interview to determine the identity of the speakers. Data collection and manipulation exercises in a game or problem-solving format motivate students not only to listen for detail but also to remember the information long enough to act upon it once it is retrieved.

Wipf has pointed out the importance of training students to listen for and identify grammatical signals and urges the inclusion of such tasks in the design of listening materials. Exercises such as listening for and recognizing plural cues, verb tense signals, and referents of pronouns should be presented in the earliest stages, considering the important role that this ability plays in determining meaning. Failure to grasp grammatical clues quickly and automatically can seriously impede comprehension.

3. *Listening for the main idea.* Scanning and skimming exercises are also valuable for encouraging students to focus on the general idea of an entire text. To develop this skill, which is so important for academic listening situations where students must take notes and reduce a large amount of information heard to an outline of main points, Meyer and Tetrault suggest condensing and gist completion. They also suggest having the student skim for a title, i.e., listen to an entire passage and provide a two- to three-word title that would be suitable. Along with other advocates of the comprehension approach, they have illustrated that the combination of the teaching of listening with

the teaching of reading is a very effective one. Their research with students of intermediate Russian indicates that the use of the aural and visual modes reinforce one another--that one can learn to read more easily by having the accompanying aural component and one can learn to understand spoken language better by having access *at the appropriate time* to the written form. Materials designed by Meyer and Tetrault include activities using written scripts (complete or partial) of the listening passage and reading is an integral part of their listening program.

4. *Guessing meaning from context.* This skill is especially important for dealing with new vocabulary items. Students are often unaware of the way they use contextual guessing in their own language and need to transfer the ability to the second language situation. Taylor points out that providing vocabulary lists before students listen to the text discourages or makes it unnecessary for the listener to engage in this very valuable process of using surrounding information to determine the definitions of new words.

5. *Predicting.* The process of learning to anticipate what is to come based on whatever information has already been presented plays an important role in learning to listen with understanding. Prediction activities are highly recommended by advocates of the comprehension approach:

> Comprehensibility will be the more successful, for the interpretative as well as the syntactic processing mechanisms, the closer the fit between what is heard and the larger frames of expectancy with which specific communicative events are approached (Byrnes 324).

Pre-listening sessions (mentioned above) are often used for this purpose to help students think ahead and to hypothesize about what they expect to hear. Meyer and Tetrault have their students listen to the title and first paragraph of a passage and ask them to speculate on the content to come, and then for "hypothesis checking" have them listen to find out if their prediction was correct.

Mastery of the five listening strategies that are briefly outlined above (tolerating the unknown, listening for specific information, listening for the main idea, guessing meaning from context, and predicting outcomes) will result in building confidence in listening and will help reduce some of the fears and anxieties associated with trying to understand authentic oral texts.

Another very basic obstacle to success in comprehension is passive detachment on the part of the listener. Some students approach the listening experience with apathy. When told that they are to listen to a passage, they settle back in their seats, fold their hands, and after hearing the first few words begin to twiddle their thumbs and slowly float away into dreamland. It is true that listening has traditionally been thought of as a passive skill, something that happens naturally, a reflex "a little like breathing" (Morley 29), merely being there doing nothing (Weaver), requiring no effort on the part of the receiver. This false assumption that advocates of the comprehension approach have blamed as masking the importance and complexity of listening (Morley) seems to be prevalent among students as well as educators. Postovsky refutes the notion: "Listening is not a passive skill; it requires full participation and the undivided attention of the learner. And when the nature of the skill is understood, the process becomes exciting" (quoted in Morley 31). Materials designers propose the following ways of dealing with the problem of listener "tune-out."

a. Require full participation and the undivided attention of the student throughout the process--before, during and after the presentation of the passage. Pre-listening, in-listening, and post-listening tasks should ask for immediate responses in various forms. "Listen and do" exercises with accompanying worksheets should present specific tasks such as problems to solve, items to number, charts or pictures to draw, objects to manipulate, sentences, words, or phrases to complete, etc.[2]

b. Select listening passages that will appeal to the interests and specific pre-occupations of the audience. Those with a visual component will hold the interest and attention of the listener longer as well as provide cues for comprehension).

c. Provide listeners in advance with a specific purpose for each listening activity that will create an urgency for concentrating and remembering what was heard long enough to act upon it.

d. Provide an immediate confirmation of performance as verification of comprehension.

e. Control the length of the lesson to ensure maximum concentration and interest.

f. Provide for student control of the presentation of the listening passage. When recorded speech samples are being used, functions such as rewind, fast forward, instant replay, recap, speed variation, pausing, etc. enable the student to interact with the materials themselves and determine the frequency, order and speed of the text.[3] In addition to the more traditional audiotape and videotape control options, the newer technologies such as audio and video computer interface systems with interactive and random access capabilities present students with further opportunities to interact with the basic materials in a variety of ways and enhance the listening experience.[4] Ways in which mechanical control functions can best be exploited and their abuse avoided must continue to be the subject of experimentation and exploration and the findings incorporated into listening materials design. Language laboratory directors who are familiar with current trends in foreign language pedagogy, principles of materials design, and media systems technology are ideally suited for conducting such research. Their experience and expertise are sorely needed in the area of listening materials production and can make a significant contribution in the following areas:

- locating and collecting authentic listening passages for various student levels and interests,
- investigating and providing appropriate technical facilities for the use of listening materials,
- encouraging and facilitating faculty involvement in the process of listening materials design and production,
- suggesting and recommending techniques, activities, and exercises for the control of the listening experience,
- developing exemplary materials that demonstrate the potential of various kinds of listening activities and the systems that deliver them.

Conclusion

To conclude, I briefly recapitulate the recommendations for listening materials and program design that have been identified by language theorists and practitioners as particularly important for the comprehension-based curriculum.

- Provide large amounts of listening exposure
- Present language that is natural and authentic
- Design materials for success in comprehension
  - Select manageable texts
  - Match task and text to student ability levels
  - Prepare listeners for what they will hear
  - Help students develop specific strategies for listening
  - Require full participation throughout the experience
  - Select interesting, challenging texts
  - Provide a purpose for listening
  - Provide confirmation of performance

- Limit duration for maximum concentration
- Provide for student control of materials

It is hoped that this compilation and examination of recommendations, with accompanying bibliographic references, will provide foreign language teachers, lab directors, and publishers with an understanding of current priorities in listening materials design, encourage active research, and inspire the creation of listening materials that will further improve the teaching of second language listening comprehension.

Notes

[1] These proceedings have been published in a special volume of *Foreign Language Annals,* September, 1984.

[2] For further descriptions of exercise types, see Richards, Morley, Asher, Wipf, Meyer and Taylor.

[3] See Pimsleur, Harvey and Driscoll on speech rate control and listening comprehension.

[4] For computer-based listening materials, see McCoy, Gale, Stevens and Wyatt.

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Developing Effective Speaking Materials for Today's Language Labs

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This paper is a relatively limited contribution to a broad, complex subject. It discusses the development of materials for the lab without presenting a study of language learning, without discussing linguistic and psychological principles, and without reference to lengthy experiments in the language laboratory. However, it is important to research carefully and study these subjects before embarking in the production of any laboratory materials intended to aid language learning. Foreign language educators have discussed the matter extensively in published works. In 1970 Chatangier and Taggart stated:

> Authors and publishers must be fully cognizant of all the implications of a rational use of the language laboratory in order to insure a systematic approach in their pedagogical materials which is consistent with sound linguistics and psychological principles as the technical possibilities offered by the electronic equipment (44).

Obviously, this is still good advice and a useful guideline for conducting experiments in the effective use of the language lab for language learning. We must insist that authors and publishers pay more attention to the quality and effectiveness of the materials they produce to accompany their texts and that they have enough variety to address most of the needs and the interests of the learners. We know, however, that there has been little progress in these areas. Moreover, we have to deal with what is available in the market and with whatever we produce in our own facilities. In-house materials are usually the result of the collaboration of teachers and laboratory personnel, done in a hurry, under pressure, and without careful thought and consideration of the needs of the students and of the capabilities of the equipment available. Some materials are very good, but they are rarely available for general distribution. Even when they become available, there is no guarantee that the teachers will use them, or that the labs will have enough necessary equipment to handle their particular requirements.

In a thorough discussion of the subject, Wilga Rivers groups commercially available audio-visual materials into three categories. First, "traditional materials," which she considers ineffectual because they are added to texts "which have not been designed for developing the speaking skills." Second, materials "put together" by teachers so that the publishers can capitalize on the "interest in audio-visual materials." These could be somewhat successful, but they neither fully exploit the potential of the audio-visual medium, nor do they help develop "the communication skills" effectively. She considers that:

> The most effective audio-visual materials will be those which have been constructed by a team of experts with linguistic and pedagogical experience, who have thought out the problems of developing skills in understanding and speaking a foreign language, and the unique contribution to be made by the visual image and accompanying recorded voices. Materials of this type will follow a graded sequence, and the picture and the tape will be fully integrated with the learning material in the text, in such a way that the contribution of the one consolidates that of the other (177).

There is still controversy regarding the value of the language laboratory for the teaching of foreign languages, and many people believe that there are good arguments on both sides. Those who favor the use of the lab believe that,

within its limitations, the language laboratory can be an invaluable adjunct. Educational technology has a great deal to offer to the profession, including, as pointed out by Paquette, the possibility of more individualized instruction, a variety of native speakers of the language, "access through computers to a variety of materials about culture, language teacher training, history, literature and many other facets of foreign language learning" (96).

Brigham Young University's *Montevidisco* is a prime example of the kind of challenging, exciting, useful materials that can be developed for the lab with the use of present-day technology. But the availability of such technology, and the belief and commitment of a few individuals is not enough to make a particular lab the effective tool that it can be. Too many language teachers still believe that the language laboratory cannot really help students learn languages. This creates an enormous problem, because teacher participation is essential to make any lab activity work. In addition, such activities must be an integral part of the course; they should complement what takes place in the classroom. Most of what is done in the lab should be introduced, discussed and prepared in the classroom. "Laboratory work . . . requires preparation in class, and adequate follow-up" (Dakin 170). We must continuously remind ourselves and others that it takes a lot of work on the part of teachers and laboratory staff to make the use of the lab a successful endeavor.

Confronted with the problems of developing "speaking materials" for the laboratory, one could get the distinct impression that this is the area where the limitations of the lab are most acute; but most laboratory materials can be used to develop speaking to various degrees. It is also obvious that there is little one can say here that is new to language teachers and lab personnel; they have tried it, seen it, or heard about it. We are all acquainted to one degree or another with matters related to language teaching and are aware of the technology available. As a matter of fact, it is possible that we are too involved with the technology and expect too much from it.

Effective language teaching still requires a great deal of thought and preparation, a consistent updating of information regarding new developments in the field, continuous experimentation in methods, techniques, and materials, and above all, a great deal of work towards integrating all resources available in order to provide the students with the best possible means of advancing in the development of the skills that will allow them to effectively communicate their thoughts in the foreign language. The advent of the language laboratory held the promise, as does the rapidly developing technology of today, of not only facilitating this process, but of making it appealing and exciting to the students. So strong is the allure that it often makes us forget that audio, video, or computer materials cannot really do the job by themselves; they need to be developed and used as part of a carefully thought out, well integrated teaching program. If technology is to be used effectively, the language courses must be designed to include it and to exploit its advantages.

After considering language pedagogy and all the technology available, using common sense is still an essential element in developing materials for the lab. It is important to continue experimenting with ideas, using different students at different levels of the learning process. We should keep in mind Dakin's statement, "the effectiveness of laboratory work is still something that requires experimental investigation" (165).

Let us then review some of the possibilities for materials that will help students develop their ability to speak.

Listening Comprehension Exercises

If the ultimate goal of learning a foreign language is to be able to communicate, then listening is an indispensable part of the process, both as a means of presentation, which implies learning by involvement and requires a large supply of simple and interesting listening materials available in the lab, and as a means of practice, which insures remembering as a result of repetition. But listening alone does not guarantee understanding; it is necessary to have comprehension exercises that allow students to show their understanding of a text.

Listening comprehension is an area rich in resource materials. We should make every effort to stock the lab with an enormous selection of recorded materials, such as prose, poetry, songs, lectures, plays, soap operas, sports announcements, simple everyday dialogues between native speakers, etc. All of these can be effective listening activities, provided the level of difficulty is appropriate for the degree of competence of the student. The greater the selection, the better the lab can accommodate individual learners. If they are really interested in the topic, they will tend to be motivated to discuss what they hear or see and to answer related questions. This in turn will promote speaking. A few years ago while visiting in Panama, I recorded bits of conversation from students at the university and then used them for listening comprehension in the lab. It worked out very well because the conversations, which were spontaneous, dealt with politics, sports, food, and academic subjects, and my students were fascinated by the fact that they could perceive attitudes as well as accents and intonation patterns while still obtaining information. They experienced some of the differences we had discussed earlier. They were more willing to struggle with the language in order to make comments, to give opinions, and to answer questions. Although it took a lot of class time, the students thought it was a very rewarding exercise. This activity can be shifted to the lab completely by having students record their comments and their answers to questions. Personal or open-ended questions based on reading, video or listening materials can be an effective way to introduce speaking in the classroom; they can be as effective in the lab when the students record their answers. They give every individual the opportunity to produce without having to wait for his or her turn. This very useful activity can be made more effective if materials are prepared so that the tape will provide some measure of self-correction, possibly taking advantage of dual track systems that allow master/student recordings. Following this type of exercise with short interviews by teachers and/or assistants will not only reinforce what has been learned but also will permit evaluation of the student's oral proficiency.

Drills

Drills have been the most common activity in the lab. And though their effectiveness has been questioned, they can be very helpful in areas such as pronunciation and structural practice. It is necessary, however, to devise better drills, making them more interesting and relevant to the students.

Drills should be more meaningful and students challenged, without making the task impossible for the learner. According to Dakin, "drills are supposed to train the learner to talk by helping him master the basic structural patterns of the language" (74), but he seems rather skeptical about their value and later indicates that drills may be only "a preparation for talking" and that "they may not be a necessary preparation" (59). He further states that although drills may not test or teach semantic structures and knowledge of the world and culture of the language studied in a systematic way, the attempt made "is better than nothing" (88).

Dakin's discussion of "meaningless" and "meaningful" drills perhaps clarifies their purpose, their limitations, and their proper place in the lab. He feels that for drills to achieve their proposed goal, the students must understand "the nature of the structures drilled" and learn to use them appropriately. Because of their limitations, traditional meaningless drills may help in the production of intelligible noises without sense of grammatical structures, or of grammatical structures that do not intend to convey information. What can be accomplished in the language laboratory can only be proven when the students need "to use the structures in appropriate contexts" (60).

Meaningful drills are less common, mostly untested, but can be quite flexible. There is a greater variety of approaches to a particular structural point in meaningful drills and they "can cover as extensive a range of syntactic problems as can meaningless drills" (85). They suffer from some of the same limitations, but they can accomplish more because they afford students some choice. The students will still make mistakes, since these drills open the way for semantic errors, especially because "meaningful prompts" tend to elicit more than one right answer. The best way to deal with this problem is to consult the teacher. To include all the possible answers on the tape would be impractical. Drills, in general, "give intensive experience of the spoken form of the language" but "by eliminating or severely restricting the choice of structure, drills preclude genuine practice in conversation" (89).

Substitution, mutation and transformation drills (Stack) are quite well known. They are used to train through repetition and variation of structural patterns, but they may be too limited to produce the desired results. Less familiar, but more valuable, alternatives are the "meaningful and communicative drill types" that Strei describes in the following manner:

> Meaningful drills require more than just the repetition or manipulation of a linguistic form. In providing a correct response, the student must know the meaning of key words in the structure being drilled (152).

Drills alone are not enough to train students to talk. It is important to include other activities that will complement them, exercises that will give students the opportunity to think and to make choices.

In order to make drills more effective they must be well-designed and made suitable for the learners, without ignoring their inherent limitations.

Oral Presentations

Oral classroom presentations, including skits, speeches, dialogues, transposed commercials, talks, etc., can also be transferred to the lab and be done more often, since an entire class can record their individual presentations in a few minutes. One particular benefit is that students can speak without being interrupted by corrections or inhibited by the presence of the other students. It is also possible for students to record brief, spontaneous "compositions" that they can later correct and continue to rework until they are satisfied with the product. Recording scenes from plays also provides a way for students to work on their pronunciation and intonation at their own pace and as often as they wish.

Group Activities

If the language laboratory equipment includes a conference mode, group activities previously confined to the classroom can take place in the lab. Students in each conference group can listen to the same material as presented in class and ask each other questions to make sure they all understand what they heard; they can then proceed to discuss the information.

It is recommended that during these activities teachers and assistants monitor the students at work so that they can readily offer suggestions or help with vocabulary and language usage.

In the conference mode, a group can also work with brief, memorized dialogues. After rehearsal, each student makes changes in his or her lines and the others must react accordingly. (This type of activity works even better when the groups write original dialogues.) Regarding the use of dialogues, another possibility is to use an edited sound track of a scene from a movie or a television show. The students' task is to supply the dialogue for the edited part. Rather extensive preparation and practice is necessary before recording the dialogue so that students are all familiar with the scenes. This activity works well with authentic dialogues from native speakers, commercials, or foreign films.

Skits and role playing are also attractive to a lot of students and are often an incentive to do well.

Activities with Other Media

Video, films, and slides provide another dimension as visual stimuli that elicit responses from the learner. Using these materials students do not have to rely completely on sound, which can often be deceptive; they can react to what they see and speak from their own storage of knowledge in order to discuss topics or answer questions. In a way, the students are in better control of what they can bring to the discussion. In addition, students can record comments about the content of the scenes and give opinions with respect to that which can be inferred from the images, especially in such areas as culture.

A great deal of attention has been given to the use of computers in language instruction; but rather than treating the topic in this discussion, the reader is referred to the paper by Paramskas in this volume.

The cooperation of teachers and the integration of lab work into the classroom are extremely important elements in the effective use of present-day technology. One often hears that the language laboratory can handle some of the "drudgery," some of the "boring" necessary activities in language teaching so that the teacher can use class time to do more "interesting and creative" things. I submit that this has helped in diminishing the value of the lab, and it is important to change such attitudes. What is done in the lab can and must be as interesting and challenging as what is done in class. We acknowledge that there is presently a renewed interest in language learning due to an awareness of the need to communicate with other people. Therefore, we need to make use of today's language laboratory to develop speaking skills effectively. To do this, we must make sure that materials are suitably designed for the lab, not just for textbooks.

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Bringing Culture into the Foreign Language Curriculum via the Language Lab

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Almost without exception, the stated objectives of any foreign language program include the goal of teaching culture. A typical example is the Guide for Foreign Language Teachers of the state of Utah. Under the heading "Objectives," the following are listed:

> To understand, through the foreign language, the contemporary values and behavior patterns of the people whose language is being learned. To become acquainted with the significant features of the country or area where the language is spoken. To develop understanding of the literary and cultural heritage of the people whose language is studied (Luckau 2).

The State of Minnesota goes even further and states that the students should gain certain skills such as being able to "...discover and explore a culture, and examine it for cultural themes" (Committee of Eleven 21). This is an example of the "culture general" approach in which the student is prepared to cope with any culture he might come in contact with.

Rather than enter the controversy over what is culture and what is not, or what should or should not be taught, we will use the definition offered by Seelye that culture includes "all aspects of the life of man, from folktales to carved whales" (22). That is a big enough area to make even the bravest language teacher's knees buckle. Nevertheless, most of us agree that we should teach it along with the language and approach the task with good intentions. We get very little help, however. Nowhere is there a textbook of culture, carefully researched and systematically ordered similar to the language textbook. It is true that most language texts have an array of pictures with accompanying captions, occasional "cultural notes," and less often, sections presenting cultural themes, but the teachers are still left on their own to choose what they will teach and determine how they will find the time and the materials to teach it.

A number of years ago I became imbued with the fervor of integrating culture into every aspect of the language classroom, and wrote an article listing the ways it could be done (Taylor, 42). Being somewhat quixotic, I was sure that all teachers would rally behind me in the cause. To my dismay I found that very few did. "We don't have time," they complained. "There's so much cultural information that we can't begin to make a dent in it. Besides, our primary responsibility is to teach the language and we can't find time to do even that."

Dale and Linda Lange appear even more naively idealistic than I. In their article "Doing the Unthinkable in the Second-Language Classroom," they give very strong arguments for the position that teaching culture should be the *primary* objective in a foreign language class, and the language becomes, almost incidentally, the vehicle for teaching culture. It is an intriguing thought but probably not too likely to happen.

How then, can language teachers fulfill their obligation of teaching culture without sacrificing their students' work on the language skills? Like Tarzan swinging on his vine to the rescue, the language lab offers a ray of hope. Its use for teaching culture has been universally overlooked, and yet almost all of the traditionally used techniques for teaching culture in the classroom can be adapted for the lab, in some cases, more effectively. In addition, the use of the most recent technology can provide some very exciting approaches that are not available in the classroom.

Some would argue that the ideal situation for teaching culture would be to place the student in the actual milieu of the culture being studied and let him smell, taste, hear, see and feel. But even that does not guarantee that the individual will perceive cultural concepts. Many people have lived in a foreign environment for two, five or even ten years and still seem oblivious to the new system of values and behavior. Just as the student who linguistically remains a "terminal 2," some individuals never get beyond the most obvious differences and continue to see and act according to their own cultural patterns. Students need guidance. They need to be taught cultural concepts. They need to *practice* the skills of coping in a new and often frustrating cultural environment. The language lab can be a great ally in this endeavor. Since it is virtually impossible to transport our students to the target culture, the culture must be transported to them, and nothing can do it so well as the use of a variety of media. Never was the old adage "a picture is worth a thousand words" truer than it is in the teaching of culture, and the presentation of visual materials fits well within the capabilities of a media center.

There is also the matter of practice. While it is true that teaching culture involves the presentation of great amounts of information, it is also true that the students must practice certain skills. They must be given opportunities to try out those skills in a number of novel situations. Just as audio tapes are used in the language lab to give the students practice with linguistic structures outside the class, so can the language lab provide practice of intercultural skills.

How can we use the language lab to the best advantage? In answering this question, we will first discuss how culture is traditionally taught in the classroom and suggest how those activities can be shifted to the lab. Second, we will present some additional strategies for teaching culture that are unique to the language lab.

Films

One of the most common classroom activities for teaching culture, films have perhaps the greatest impact. They get students very close to the real thing. However, they also cut deeply into class time. If the media center has facilities for showing films, the students can view them outside class at a scheduled time or at their own convenience.

In a "culture general" approach, there are a good number of excellent films, such as "In the Eye of the Beholder" and "The Bridge." The teacher rarely has time to show them in class; but they could be shown in the lab, allowing more time in class for discussion and role playing. If the lab can accommodate small groups to watch a film, ensuing group interaction can be very stimulating.

Audio Tapes

Teachers often use audio tapes in the classroom to present interviews, music, the authentic sounds of street scenes, sporting and cultural events, etc. Again, the lab can handle these "slices of life" very easily.

There are many commercial tape programs available that present cultural information. The use of a library-type language lab allows students to listen to the tapes on an individual basis. The use of lab manuals or handbooks with the audio materials can greatly increase the learning. One of the more popular approaches to teaching cultural information is the "mini-drama." Developed by Raymond Gorden, mini-dramas prove to be very motivating to students because of the dramatization approach: Although Gorden used them in the classroom, they could be readily adapted for individual use in a language lab.

Another use of the audio tapes is the testing of cultural information. A very motivating cultural test has been developed by Wendell Hall, professor of Spanish at Brigham Young University. It contains sound effects, music and native voices on tape, plus an illustrated test booklet. It is actually a test that students enjoy taking! Other types of audio-tape tests that could be given in labs include identification of cultural sounds, recognition of dialectical pronunciations, and classification of kinds and origins of music.

A number of different activities can be presented in a language lab with music tapes. Many teachers have collected records and tapes with songs from different target-language countries. These songs are a rich source of cultural information and can be very conveniently used in a language lab.

Video Tapes

Teachers now use a variety of video tapes to present cultural information, including commercially produced materials, copies of television programs and commercials, copies of films, and even locally produced materials. If the student has access to "library" video tapes, which he can use individually in a carrel in the language lab, his learning can be greatly increased because he can "freeze frame," repeat specific segments, and watch the tape numerous times.

Teachers can prepare video tape "packets" in which an especially good segment of film or television program has been dubbed. The packets include guide materials that help students look for specific information and concepts, give them help with vocabulary and language difficulties, and provide them with a variety of practice exercises.

The use of "homemade" video tapes offers an endless variety of possibilities for teaching culture. Students can research cultural themes and write their own dialogs, illustrating cultural conflicts that might arise. Larson has demonstrated that this can be very effective in high school as well as college-level courses. Video taping performances of these dialogs could increase the motivation of the students who write them, and copies of these tapes could be used to build a "library" of tapes that can be viewed by subsequent classes.

Slide/Tape Lectures

Teachers of humanities classes constantly illustrate their lectures with slides showing paintings, styles of architecture, sculptures, etc. The preparation of lectures narrated on tapes and coordinated with slides would also allow language students to prepare themselves in the lab before class, or to practice after class the concepts the teacher has presented. Information that the teacher often has to leave out in class presentations because of lack of time can easily be presented in the lab and at the student's own pace of learning. Obviously, slides could also be used in a variety of ways to *test* cultural information taught in a language class.

A very popular technique for presenting cultural information in the classroom is the "culture capsule." As first developed by Taylor and Sorenson, the culture capsule presentation centered around some "realia" object, such as a *mate* or a *machete* (often stored in a shoebox along with the script), and the teacher read a narration about the object. Culture capsules could be nicely adapted for use in a language lab, using slides to illustrate the object and a synchronized tape narration.

Now that we have examined some of the areas in which traditional classroom teaching of culture can be shifted to the language lab, we turn our attention to some exciting features that a more sophisticated lab can offer.

Live Television

The potential for cultural learning through live television, either via cable or satellite reception, is enormous. Students can watch programs from different countries at any time of the day, and, with guidance from professors, can watch for specific cultural traits. For example, the teacher might ask the students to report on the use of gestures, use of space, clothing styles, etc. Live television has the great advantage of being current, up-to-date and thus motivating to the students. However, it does have the disadvantage that once it has been seen, it can't be retrieved. Nevertheless, experience with live TV has demonstrated that certain students (for example, those who get "hooked" on soap operas) can make great gains in listening comprehension and cultural understanding. More research and evaluation needs to be done in this area.

Micro Computers

A micro-computer lab opens up some exciting new horizons for the teaching of culture. Students would be able to check out diskettes and work at individual stations, interacting with the computer in answering questions and responding to different stimuli. Feedback is immediate. An example of a program for teaching culture via a micro- computer can be seen in the "Culture Assimilator" materials developed at Brigham Young University. While working with this computer program, students are presented with critical cultural situations and are then given a choice of possible solutions to the problems. Different kinds of "retorts" let them know if they have used basic cultural concepts wisely. Attractive graphics can do much to enhance the cultural information being presented. Experimentation is being done to add an audio component to these programs. Using random access audio tape players such as the Tandberg or Instavox machines, which can be controlled by the computer, an audio facet can be added to a program that otherwise is strictly visual. Thus, the student can hear the language as well as read it.

Computer Interface with Video Tapes and Video Disks

Perhaps the ultimate in media use for teaching culture is the interfacing of a micro-computer with a video cassette player or a video disk player. Two prototype interactive video disk programs have been developed at Brigham Young University: "Montevidisco" and "Macario." Montevidisco simulates a visit to a Spanish-speaking city. The video disk presents the student with a number of cultural and linguistic situations, while the computer allows him to make choices and record his responses. *Macario* is a full-length movie that has been put on a video disk that interfaces with a micro-computer. Students view segments of the movie and then react to cultural and linguistic questions asked by the computer. Because of the high costs of video disk materials, similar programs using video tapes are being developed. These programs present short segments of a commercial film on video tape, which are accessed via an Apple computer. Interactive programs with video tapes can be prepared at a fraction of the cost of video disk program. This type of interactive video material is within the budget of most institutions and gives great promise for an exciting way to teach culture.

The discussion presented above gives strong evidence that the uses of language labs for the teaching of culture are virtually inexhaustible. In recent years, textbook companies have shown a greater awareness of the importance of presenting cultural concepts and information, but their attempts to include them in their textbooks are still far from adequate. An informal study of the pictures and cultural notes included in the most popular college Spanish textbooks indicated that there appears to be no perceivable system or rationale in deciding what cultural concepts to include or to leave out. Somehow, companies that publish textbooks and provide audio tapes for language practice will have to be convinced that they need to provide audio and video tapes that will allow the learning and practice of cultural materials as well.

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Testing in the Language Laboratory

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Language learning centers, or language labs, as they are more commonly known, have been used for a variety of foreign language instructional activities over the years. Their popularity went from a peak in the late sixties to dismal depths in the late seventies. Thanks to an up-surge in technological development, however, the language lab is beginning to show its real potential, a potential that was really never envisioned several years ago, much less realized. Accompanying the new wave of technology is an increased desire to use the language learning lab for more than a "baby-sitting" facility, as was often the case in years past. Emphasis is now being given to a greater variety of instructional activities, ranging from innovative pronunciation practice to global testing and evaluation exercises.

Importance of the Lab in Language Testing

A great deal of enthusiasm towards language testing has surfaced during the past decade. Because of the increased demand for foreign language competence, teachers and researchers are seeking ways to improve testing techniques that will be able to assess competency more accurately and efficiently. Of particular interest now is oral proficiency testing, although efforts are beginning to focus on proficiency testing of the other modalities as well (Larson and Jones).

In the search for more economical and productive testing procedures, language lab facilities offer several attractive features. In addition to being able to administer tests one-on-one in the lab, a teacher can administer several speaking tests simultaneously. Teachers who in the past have avoided giving oral tests to their students because of the amount of time required are beginning to include such tests in their curriculum. The introduction of micro-processor technology has opened new vistas for language testing; "console-controlled" tests can be administered by lab assistants, allowing the teacher more time for classroom instructional activities or time for lesson preparation, which is always welcomed.

Many language learning laboratories are being designed to include more than audio capabilities. Video players and computers are now an integral part of the language learning lab system. An increasing number of materials publishers are offering video tapes and computer software for language training. It is fitting to use many of these *teaching* materials for *testing* as well, since one should be able to use almost any good teaching activity in a testing situation. Listening comprehension skills can be detected just as easily with a video tape as with an audio tape. In fact, such skills as understanding gestures, kinesics, and other paralinguistic features of a language can readily be assessed using video programs.

The role of computers in language testing has attracted an enormous amount of attention in the past few years. Included among the reasons given for this interest is the fact that the computer does not tire and become visibly frustrated when students are not able to perform up to expected standards. Also, students today are at ease with the computer and find it an enjoyable medium of instruction. A report on computer-based instruction from the National Center for Educational Statistics claims that the number of microcomputers available for student use in public schools has more than tripled since the fall of 1980 (Thrush and Thrush 21).

Application of computers in language testing generally fall into two areas: computer-assisted testing and computer-adaptive testing. Of the two areas, computer-assisted testing (CAT) is by far the most common. CAT involves computer assistance in a number of ways. In its simplest form, the computer may serve simply as a word processor, which teachers use as they prepare and edit a traditional pen-and-paper type test. A more advanced application of CAT is seen when the computer is used to generate test items randomly from a bank of items stored in its memory. This, in effect, provides for a separate and secure test for each student.

Computer-adaptive language testing (CALT) involves more than providing questions on a random basis. CALT adapts the test to the ability of the individual student by presenting a more difficult item when the previous item was answered correctly or giving an easier item if the previous one was answered incorrectly. This type of test is particularly useful for placement and diagnostic purposes as well as for proficiency testing. In order for the computer to adapt the test to the level of the student, a large bank of items must be created and stored in the memory of the computer. These items must be carefully written and calibrated in order to cover uniformly the entire spectrum of difficulty desired.

Computer-adaptive tests are attractive to students and test administrators alike. Since the test items are selected by the computer according to the demonstrated ability of the individual student, the student is not frustrated by being exposed to test items that are far too difficult, nor does the student become bored because of items that are not challenging. Test administrators favor CALT tests because they require less time to give than conventional tests, since they are tailored to the student and, therefore, require fewer items. An additional plus for the test administrator is the fact that the computer can also function as the record keeper, recording each student's performance and reporting it to the student. There are other benefits of CALT: test security is improved, students are able work at their own pace, problems inherent with answer sheets are eliminated (i.e., becoming lost, torn, smudged and unreadable, etc.), faulty items can be changed quickly without having to reprint the test, and a greater variety of questions can be included (Wainer 15).

However, there are some problems associated with computer-adaptive language tests. Wyatt points out that one concern relates to the affective domain. "Test anxiety and general nervousness could lead to 'keyboard shock' if students are faced with an unfamiliar keyboard for the test" (403). He further explains that limited displayable text on the screen imposes a limitation on reading test items (403). The time required to produce the number of test bank items necessary for an effective CALT test is another obstacle.

There is some justified skepticism about using the computer for language testing. Davies stresses:

> It is important that we do not take a magic-cure view of testing in CALL [Computer Assisted Language Learning], believing that we can test areas of language use that we cannot describe or categorize. It is fallacious to pretend to ourselves that interaction, communicative activities, rhetorical and stylistic control will become available to us because we are using computers. On the contrary, what we need to do is to consider what we can describe and categorize in language, what is unique about CALL, and how the two can be combined to assist us in testing language (42, 48).

Laboratory Testing Activities

Obviously, language learning centers vary greatly in the amount and type of media equipment available for language instruction and testing. Nevertheless, most labs are sufficiently equipped to be able to test to some degree all of the language skills, including structure, vocabulary, and culture. Several testing activities that can be conducted in the language lab for each of the skill areas are discussed below. While not all of the activities described can be accomplished in all lab configurations, ideas may be spawned from the discussion that will lead to alternative testing activities that can be done in your laboratory situation. Some of the items are useful in testing discrete information; others involve global language skills evaluation. It also bears mentioning that any kind of test item--whether in a laboratory testing situation or otherwise--should directly reflect the kinds of activities used during instruction. It would be grossly unfair, for example, to require students to complete a simultaneous interpretation-type test item to assess listening comprehension skills when they have never had to perform that kind of activity as part of the learning process in class.

In addition to trying out some of the testing activities mentioned here, the reader is encouraged to consult publications that deal with language testing in general to gain further ideas for testing in the lab.[1]

Testing Listening

Testing listening skills perhaps is considered the most common use of the language lab as far as testing is concerned. Indeed, the lab is very well suited to this type of activity. The listening skill can be divided into two main areas: listening discrimination and listening comprehension. Listening discrimination deals more precisely with recognition of discrete sounds, tenses, vocabulary items, and finding key elements such as subjects, objects, modifiers, etc. Listening comprehension focuses more on understanding of the overall message being conveyed.

Testing Activity #1: (Discrimination--beginning level) Students are required to distinguish critical sounds of the language by selecting from minimal pairs the word they heard on the tape. Students are given an answer sheet listing all of the minimal pairs to be tested. Selection is done by circling the word heard. The score is the number of correct responses.

Testing Activity #2: (Discrimination--beginning, intermediate level) A prerecorded story is played to the students who record a tally mark on their paper each time they hear a preterit tense used in the story. The objective being tested is simply recognition of past tense endings. Scoring is done by totaling the tally marks.

Testing Activity #3: (Comprehension--beginning level) Students are given a number of visuals or drawings, many of which correspond to recorded passages. Each student marks the letter of the visual that most accurately depicts the passage heard. A student's score is the number of correct responses. It is necessary to have more visuals than passages so that students are not able to improve their score through the process of elimination. The activity could also serve for advanced students by increasing the complexity of the visuals and passages.

Testing Activity #4: (Comprehension--beginning, intermediate, advanced level) Students hear several listening passages with four or five possible responses written in English on an answer sheet. (The responses are in English so that the teacher is able to determine whether a given item is missed due to a deficiency in listening and not confounded by a reading problem. The students answer by circling the letter of the correct response. Their score is the number of correct responses. The activity can be altered for advanced students by having the recorded responses in the target language, and, of course, by creating more complex listening passages. For very advanced students, teachers might include a little background interference, such as subdued conversations, street noises, or other muffled sounds that would likely be found in a natural listening environment.

Testing Activity #5: (Comprehension--beginning, intermediate level) Students are given a detailed map, including geographical markings, labeled landmarks such as particular buildings, parks, street names, etc. Students listen to instructions on the tape directing them to certain locations on the map. Students trace in non-erasable ink the path they are following according to how they understand the directions. The teacher scores the exercise by checking the tracings of the students. A point is awarded for each correct landmark passed by the student.

Testing Activity #6: (Comprehension--beginning to advanced) Students are given a prerecorded tape that contains instructions for drawing a "mystery item."[2] They are able to play the instructions at their own pace, drawing the mystery item as they listen to the tape. More detailed instructions should appear on tapes for intermediate to advanced students. Students' drawings (the visual representation of their comprehension) are scored using a rating scale from 1 to 10. Care should be taken not to judge on the basis of artistic ability but rather according to the details present.

Testing Activity #7: (Comprehension--beginning to advanced level) While listening to a recording of a newscast, students are required to pick out specific information, i.e., location of a certain event, time of occurrence, who was involved, etc. Other types of recordings could be used, such as weathercasts, travelogues, etc. For more advanced students, recordings of greater complexity should be used, requiring more detailed responses. Performance is scored according to the number of pieces of information identified. Video tape recordings are particularly well suited for this kind of testing activity, since they provide added listening comprehension clues that are often part of a natural listening situation.

Testing Activity #8: (Comprehension--Advanced) For students of exceptional ability, a recording is played while the students simultaneously translate/interpret the contents into English. The English translation is recorded onto the student's individual response tape. The teacher later evaluates the response tapes using a rating scale of 1 to 10 for a general comprehension score. In order to be able to assign a more objective performance score, the teacher should predetermine specific contents of the passage to be awarded credit. For each suitable translation of those items, the student is awarded a point. No other information is considered in the evaluation.

Testing Speaking

Speaking is the second most common language skill used in the language laboratory. Most labs are equipped with machines that will allow the students to record their responses onto their individual tapes. Teachers should be encouraged not to shy away from giving oral tests to their students, thinking that there simply is not enough time. While it is true that oral testing requires a little more time investment than pen-and-paper type tests, that time can be greatly reduced by using the lab for testing, since several, indeed an entire class, can be tested at once in some labs. Language lab consoles equipped with a testing function make it possible to control remotely the students' recorders so that student answers only are recorded, not the instructions or questions. This greatly facilitates scoring, since teachers do not have to spend time searching for answers on the student tapes nor listening to the questions each time.

Testing Activity #1: (Beginning, intermediate level) Students are given several "dehydrated sentences" (isolated words from a sentence separated by slashes) and are told to record onto their tapes meaningful, complete sentences using the words in each item. Sentences are scored on a scale of 0 to 3, zero when the sentence is totally incomprehensible, and 3 when grammatically and logically correct.

Testing Activity #2: (Beginning, intermediate level) Each student is given a map that contains various labeled landmarks such as specific buildings, streets, parks, etc. Indicated on the map is the supposed location of the student and a stranger who is visiting the city for the first time. In the target language, the student tells the stranger (records onto his tape) the exact directions for going from the stranger's present location to the post office, or some other destination that is located on the map. The student's response is scored on a scale of 0 to 5, according to the accuracy of the instructions, and, if considered necessary, according to the grammatical correctness of the response.

Testing Activity #3: (Beginning, intermediate level) Students are given a written dialog containing only half of the exchanges. Onto their tapes they create and record the missing exchanges. Their responses are scored on a scale of 0 to 5 according to the appropriateness of their response. If the teacher wishes to grade the students on their use of new structures learned, the teacher scores each response from 0 to 3.

Testing Activity #4: (Beginning, intermediate level) Students are given a picture to describe, using as many new vocabulary items and structures as possible. They are allowed one minute to respond. Their responses are scored on a scale of 0 to 10, five points possible for thoroughness of response and five points possible for grammatical accuracy.

Testing Activity #5: (Beginning to advanced level) Each student is given an oral interview, either directly from the teacher through the console or "semi-directly" via a pre-recorded oral testing tape. On the prerecorded tape, the teacher allows pauses between each question for the students to record their responses. The pause lengths vary according to the difficulty of the test question. Test item types that are easily tested in this manner include question/answer, sentence completion, reactions to hypothetical situations (such as talking your way out of trouble), etc. The responses are scored using a rating scale of variable credit, depending upon the difficulty of the item. For example, reactions to hypothetical situations could be scored on a scale of 0 to 5 for appropriateness of response, 0 to 5 for grammatical accuracy, and 0 to 5 for quality of response, i.e., did the student try to use new vocabulary, complex sentence structures, etc.

Testing Activity #6: (Intermediate, advanced level) Students are presented one side of a pre-recorded telephone conversation with pauses for their response. They respond in the time allotted and are scored separately on a scale of 0 to 2 for appropriateness of response and 0 to 3 for accuracy.

Testing Activity #6: (Intermediate, advanced level) Students listen to a narrative in their native language and are required to retell the story in the target language. For less advanced students, this type of testing exercise should employ shorter segments to be paraphrased. Students' responses are rated according to completeness and accuracy of information (and grammatical accuracy, if deemed necessary).

Testing Activity #7: (Advanced) From the language lab console, the teacher plays a pre-recorded speech in the students' native language. As the test tape plays, students simultaneously record onto their individual test tapes the translation of the speech in the target language. Their responses are scored for accuracy of translation by paragraph. Each paragraph carries a total of 10 possible points. An alternative scoring method is to determine beforehand specific key items that are critical to understanding the message of the translation. Each of these items is assigned a point total, the sum of which is the total possible score on the test.

Testing Reading

Traditionally, one does not associate the reading skill with the language lab. However, many language learning centers are now being equipped with computers in order to make use of CAI (computer assisted instruction) language-related software, which is increasing in popularity. Many foreign language instructional materials publishers now include CAI software as a part of their merchandise.[3] With the advent of computers in the lab, a variety of reading exercises and tests become possible. Word processing capabilities are available for nearly all micro-computers that are likely to be found in language learning labs. Some of these programs are quite complicated, yet others are very easy to learn and to use. If teachers are planning to use computers in their learning labs, they would do well to include word processing capabilities among the types of software programs purchased for the lab.

Testing Activity #1: (Beginning, intermediate level) The teacher projects overhead transparency copies of several advertisements extracted from newspapers or magazines of the target language. Students read the ads and summarize them in their native language onto their tape. Teacher later listens to the tapes and scores them from 0 to 5, according to accuracy and completeness of response.

Testing Activity #2: (Intermediate, advanced level) Students are presented several reading passages on the computer. Accompanying each passage is a series of multiple-choice questions about the passage. Students record their answers on the computer. The computer program is designed both to bring up the passages and their respective questions at random (which allows for several alternate forms of a given test) and to keep track of the students' scores. (Each item answered correctly has a value of one point.)

Testing Activity #3: (Intermediate, advanced level) Students are presented a brief story or essay on the computer. The order of the paragraphs has been changed. Students are required to reorder the paragraphs so that the story or essay progresses or develops logically. (Word processing capability is necessary for the students to complete this type of test item.) The students' scores are determined by the number of paragraphs that have been placed in the proper sequence.

Another way that this kind of test can be done is to number each paragraph and have students change the numbers only to the correct sequence.

Testing Writing

As with reading, much of what can be done to improve the writing skill in the language lab can be accomplished with the computer, particularly if the students have access to word processing software with foreign character sets. Being able to add to and edit their answers as they formulate them is a positive and reinforcing experience for students.

Testing Activity #1: (Beginning, intermediate level) Students are given several "dehydrated sentences" that they are to form into meaningful, grammatically correct sentences on the computer. After they have completed writing their responses to the test items, the answers are printed on hard copy for the teacher to score. If a printer with the foreign character set is not available, the teacher views the appropriate file on each student's disk. The teacher scores the sentences from 0 to 5, 5 representing a sentence with all of the "dehydrated" parts present, plus being structurally correct. Teacher may choose to subtract points for errors in spelling if that has been stressed as one of the learning objectives.

Testing Activity #2: (Intermediate, advanced level) Students are required to write up an advertisement for a particular product in the target culture. Their ads are rated from 0 to 15: 0 to 5 on creativity, 0 to 5 on linguistic correctness, 0 to 5 on linguistic complexity (i.e., did the student use more than simple sentence constructions).

Testing Activity #3: (Intermediate, advanced level) Students compose on the computer a brief composition on a specified (or open) topic. Compositions are scored 0 to 5 for creativity, 0 to 15 for linguistic accuracy, and 0 to 10 for linguistic complexity. (The computer is particularly well-suited for this type of activity, since students can easily edit and revise their responses during the time allotted.)

Testing Activity #4: (Advanced level) Students are given a brief speech or essay in their native language and must translate it into the target language using the computer. Their responses are scored for accuracy of translation by paragraph. Each paragraph carries a total of 10 possible points. An alternative scoring method is to determine beforehand specific key items that are critical to understanding the message of the translation. Each of these items is assigned a point total, the sum of which is the total possible score on the test.

The following testing activities assess both reading and writing skills:

Testing Activity #1: (Beginning, intermediate level, reading and writing) On the computer, students are given several sentences with a scrambled word order. They are required to rearrange the order of the words and type in a sentence that is grammatically correct and semantically appropriate using the same words. Scoring is done by rating each sentence from 0 to 5, according to the new sentence's correctness and appropriateness. (It is possible for the teacher to devise scrambled sentences that will result in only one proper sentence. This will simplify the scoring, simply assigning 1 point for each sentence.)

Testing Activity #2: (Intermediate, advanced level, reading and writing) Students are presented a cloze passage on the computer screen. Every nth word (5th, 7th or 9th) has been deleted and a blank inserted in its place. The students type in the word that they feel most appropriately (structurally, semantically, etc.) fits the sentence. (This type of test exercise is most easily completed if the passage is written with a word processing program.) Students' scores are the number of blanks filled in with either the exact word deleted or an appropriate alternative. (The teacher decides whether the "exact" or the "appropriate" scoring method should be used.)

Testing Activity #3: (Intermediate, advanced level, reading and writing) Student reads on the computer screen a passage of substantial length that has been written with several extraneous items (i.e., lexical misfits, ungrammatical structures, misspellings, unrelated sentences, etc.) and deletes or corrects the inappropriate items. (This type of activity will work best if the reading passage has been written using a word-processing program that will allow the students to make editing changes easily. It is important to include a blank in which the students are instructed to type in their names.) To check the students' responses, the teacher simply needs to print out the edited copies. The student's score is the number of changes he detected and corrected properly.

Testing Culture

Many commercial and locally-made audio, video, and computer materials exist that can be used in the learning resource center or language lab to enhance students' understanding of the target culture. These same materials can often be used in testing situations.

Testing Activity #1: (Beginning to advanced level) Students view several short video tape segments depicting slices of life from the target culture. They are required to identify X number of cultural traits or actions that are similar to their own culture and X number that are distinctive to the target culture. In scoring the testing activity, one point is awarded for each trait or action identified.

Testing Activity #2: (Beginning to advanced level) Students read culture assimilator episodes presented on the computer.[4] As they select options for completing the episodes, the computer indicates whether their choice is right or wrong. If the choice is incorrect, the computer displays the reason why the answer was not correct

[5] This item is adapted from a similar cultural exercise in *Teaching Culture: Strategies for Foreign Language Educators* by H. Ned Seelye, pages 60-61.

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and allows the student another selection. After completing the series of episodes, the computer totals the student's scores and records them for teacher evaluation.

Testing Activity #3: (Beginning to advanced level) Students view 25 numbered slides from diverse sources, 15 of which portray authentic scenes from the target culture. The students are required to identify by number as many of the authentic scenes as possible.[5] (Students are not told how many of the authentic scenes to look for.) Their score is the number of scenes correctly chosen.

Conclusion

Testing in the language laboratory provides for a variety of creative and effective tests in all skill areas. Teachers who wish to use the laboratory for testing purposes, but are in need of ideas, should consult published texts and handbooks that discuss general and specific testing techniques. Many of the testing suggestions presented in these publications can be adapted for testing in the language lab.

Notes

[1] A volume that presents several good foreign language testing activities is *Modern Language Testing* by Rebecca M. Valette. Articles discussing various testing techniques and activities are found regularly in professional journals such as *Foreign Language Annals*, *Canadian Modern Language Review*, *Language Learning*, *Modern Language Journal*, and *TESOL Quarterly*. Another valuable source of information is The ACTFL Foreign Language Education Series published each year by the American Council on the Teaching of Foreign Languages.

[2] This testing activity is derived from a listening exercise in *Bring the Lab Back to Life* by Philip Ely, page 13.

[3] Publishing companies that now offer CAI courseware include Gessler Publishing Co., 900 Broadway, New York, NY 10003; Regents Publishing Co., 2 Park Avenue, New York, NY 10016; National Textbook Co., 4225 W. Touhy Avenue, Lincolnwood, IL 60646-1975; Langenscheidt Publishers, Inc., 46-35 54th Road, Maspeth, NY 11378; Wible Language Institute, 24 South 8th Street, P.O. Box 870, Allentown, PA 18105; EMC Publishing Co., 300 York Avenue, St. Paul, MN 55101; Island Software, Box 300, Lake Grove, NY 11755; COMPress, P.O. Box 102, Wentworth, NH 03282.

[4] An example of this type of culture assimilator is Baedeker's Travelware marketed by Langenscheidt Publishers, Inc., New York.

Involving the Faculty Member in the Language Laboratory

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The language laboratory is not as new to the teaching field as the inquiries on methodology and management might lead us to believe, nor are articles suggesting ways for faculty members to use its functions. In fact, faculty involvement has been addressed frequently at conferences and in journals, especially the *Journal of the International Association of Learning Laboratories (NALLD)* which has published a wide variety of papers on the subject since 1966.

Therefore, when increasing faculty involvement was suggested as a topic for this conference, it seemed to me to be unnecessary. A receptive and friendly lab director, an interested administration, and an adequate budget for supplies, maintenance, and equipment are all any school needs for an active and successful lab program. Nevertheless, after researching the topic and rereading numerous articles in the *NALLD Journal*, I believe there are some specific techniques that can be used by a lab director that will help faculty members and students realize the learning potential embodied in modern language laboratory facilities. The purpose of this paper is to share some of the techniques discussed in those *NALLD* articles and also some techniques that have worked well at Georgetown University.

Literature on the Language Laboratory

The application of technology in the classroom has been a concern since the 19th century when the origins of current practices began. In the 1890's, two teachers described the essential skills that can be obtained by using audio equipment and language laboratories. Professor Cortina and Dr. Rosenthal recorded foreign language programs on phonograph cylinders. These recordings were used in class or mailed to correspondence students who recorded their responses on blank cylinders and returned their responses to their professor for commentary and correction (Peterson). In an 1891 issue of *The Phonogram*, Rosenthal discussed the basic practices that are still expected from the lab: ear training, de-emphasis on phonetic transcription, the importance of intonation, the use of native models, practice out loud, pattern drills, and short intervals of practice (Peterson).

Through the years educators have lectured and written on the fundamental necessity to regard the language laboratory as an aid to classroom work, even though its use created more work, not less, for the teacher. Karl Pond in an address given at the Second Annual Meeting of the National Association of Language Laboratory Directors in 1967 restated the objective that students must be aware of in order to benefit from taped materials. Pond writes that the classroom teacher is responsible for pointing out to the students what can be accomplished by using the lab and that the classroom teacher is responsible for testing student accomplishments. The interaction between the laboratory and the classroom should include the application of both applied linguistics and learning theories to motivate students. The laboratory should be flexible enough to allow teachers to experiment and create the materials needed to meet classroom objectives. According to Pond, without the teacher to motivate students and integrate learning materials, the laboratory is not as effective. Lab directors need to set up a dialogue with teachers and must be more than custodians of mechanical devices.

Colonel H.P. Montague of Queensborough Community College reiterated Pond's concerns, and highlighted the basic contributions that labs can make to the language learner and to "students in almost any field" (16). Audio tapes can provide the specialized exercises or lectures that students may need for review and for repetitive practice. An audio library then becomes an additional service and asset for language learners that the language lab provides. His article also indicated a new trend in lab organization and purpose: away from a language-oriented area to a university facility.

Two of the best resources for either the beginning teacher or the new lab director are Edward Stack's early volume on *The Language Laboratory and Modern Language Teaching* and Julian Dakin's *The Language Lab and the Language Learner*. Although a few terms have become obsolete as technology changed, the books cover basic organizational needs and methodologies that remain relevant today. Stack discusses the topics that are needed to set up a lab that will be responsive to teaching needs, covering topics from descriptive analysis of drills to administrative problems. An NALLD article by Stack discusses the changes that occurred since the National Defense Education Act (NDEA) and the government funding that promoted development of language labs. Briefly, subsequent stages of development in language labs were the switch to cassettes, the increased use of video, and the administrative change to an independent status as media centers from being vassals of language departments. In summary, the independence of labs was established; it was widely recognized that teachers faced a challenge in keeping up with technology and integrating lab programs into classroom activities.

In 1975, Arthur Gionet cited several problems relating to language labs that are still of concern: the lab provides only peripheral services, lab time is not sufficiently incorporated into classroom activities, and tapes are repetitive and boring. He also suggested that the lab director should be a resource person to help teachers. This and many other of his recommendations have been incorporated in today's labs. Special language programs have been designed for specific career needs, and the lab is open to university and community needs. As a research center and a training center, the lab can be a source for "new educational thinking and experimentations" to increase the efficiency of our programs and to reduce some of the drudgery associated with language learning. In short, Gionet urges teachers to participate in ventures to develop imaginative and effective tape programs that use technology to provide the potential expected from labs. Furthermore, he notes the need to involve teachers in total operation of the lab.

Cole suggests that the lab director should be a public relations person. He views the lab as having interest to four groups: the student, the departments, the academic community, and the local community. For the students, he recommends a pleasing atmosphere for studying, convenient hours, good software, and a supply of individualized self-instructional foreign language programs. Additionally if the lab can function as a foreign language information center and provide tape copying service for its users, he sees the lab as even more beneficial to the student body.

For the departments, Cole has six recommendations: the lab staff should offer audio-visual workshops for faculty; the lab should serve as a "clearing house" for new materials and catalogues; it should provide special A-V and media services to enhance the classroom program; the lab should provide a quality sound recording studio for faculty use; it should offer consultant/guest speaker services in methodology courses; and, finally, the lab should maintain open and friendly lines of communication with the departments to handle on-going evaluation of the software and services needed.

For the academic community, Cole urges advertising the lab's services and abilities through all departments, either by flyers, letters or personal visits. The faculty member from science or social studies who needs either to study a language or refresh his present language skills is important, too.

The local community's use of the lab facility may be restricted because of size or institutional policies; however, it is worth investigating possibilities. Exchange might be made (of non-copyrighted materials) with other institutions or organizations. For all four of these groups to be reached successfully, teachers must be involved in planning and production stages.

The Georgetown University Experience

Both Gionet's and Cole's observations continue to be applicable today. A teacher who accepts and uses technology remains one of the best advertisements a language laboratory can have. However, many new teachers have little methodology training and fewer have had experience with the equipment in language labs. In fact, the use of language laboratories was not understood fully by administrators, parents or many teachers during the early days of the NDEA grants for equipment. Mistakes made during those periods have continued to plague lab installations. Thus, a teacher who has learned over the years to use effectively all, or even some, of the aspects of the language laboratory equipment is an asset to lab directors. That teacher will demonstrate both to his or her students, teaching assistants, and colleagues inventive and creative ways of adapting equipment to meet the challenges of language teaching. When teachers make good use of the programs, the students increase their own use of the tape material. Joseph Sheehan, in a paper delivered at Northeast Conference, discussed teacher objectives that insure students maximum benefit of time spent in the learning laboratory. He states that students must: 1) be cognitively and effectively prepared by the classroom teacher, 2) know what he/she is expected to do, 3) work on materials that are appropriate to his/her level, 4) work on materials that are a means to obtaining the instructional goals, and 5) be evaluated.

In using the lab, it is reasonable to expect a student 1) to be aware of voices and dialects other than those of his teacher, 2) to develop his echoic memory, 3) to take responsibility for doing a task thoroughly, 4) to develop an awareness of what is correct, 5) to apply what he has learned in the classroom to new tasks, 6) to extend what has been learned in the classroom, 7) to make the graphemephoneme correspondence recognition more skillfully while increasing comprehension.

However, a student will not be able to achieve these goals without the proper guidance of his or her teachers. Frequently, the students have no idea of the advantages in using lab equipment instead of their small cassette recorders. Teachers may forget to tell the class how to record his/her voice on the student track and why it is important to listen to both tracks for student mistakes. Listening comprehension is not easy in the early stages of language learning. It takes practice to listen to one's own voice, to listen and compare answers with the native speaker on the tape, to pick out mistakes and then work to correct that mistake before the next class (Morley). Pattern phrasing and intonation also give learners problems. Listening to student responses and comparing those with the correct responses on the tape takes time and patience. A good teacher recognizes this fact and responds accordingly in class. Careful work in the classroom with tapes can show students particular difficulties to avoid with the second language pronunciation and phrasing.

Taped quizzes, which require the student to go to the lab to record his/her voice, often encourage active practice with audio tapes and equipment. When students learn to use the record/playback capabilities of the lab machines and when students learn to evaluate some of their own mistakes, classroom learning is more productive. However, it is up to the instructor to show the students just how to use the language laboratory for maximum effect. The lab director may find that classroom visits to discuss how the lab equipment operates are helpful to both teachers and students. Lab orientations may also be useful at the beginning of each semester.

One of the most frequent sources of frustration for students and teachers in the laboratory is equipment failure. It is important to keep the audio cassettes clean. Dirty and old result in poor sound recordings. Reports from foreign language supervisors indicate that although lack of teacher interest and involvement may be the root of some lab problems, poor audio quality (low volume, hiss, distortion) frequently causes low student usage of study labs. Teacher interest and involvement refer not only to knowing how to manipulate the switches but also to understanding the basic techniques of instruction that must be used to make lab work contribute to successful total language instruction. It is important that teachers accompany their classes to the labs. During class activities in a language learning lab, a teacher should actively control the lab console, skipping the tape if the skills have already been learned and fast-forwarding the tape to reach difficult passages and pronunciation problems. Student surveys on language labs indicate that students prefer teacher corrections during lab times (Survey Report); apparently, the privacy in the labs allows the student to accept corrections with less concern than classroom corrections. Teachers and students are willing to try new ideas but are easily discouraged, so the lab equipment has to be kept in good working order with as few "out of order" signs as possible. Students should be encouraged to report problems with equipment so that repairs can be made promptly. A receptive lab staff, willing to respond to student equipment problems, is an asset in establishing a good working atmosphere in the lab.

Small changes can make a big difference in teacher and student attitudes about labs. At Georgetown, the name "language lab" was changed to "teaching lab." The booths were removed, a large porcelain writing board was installed, and teachers were encouraged to use the console only for that portion of the class when taped material is appropriate. By making the teaching lab resemble a regular classroom, teachers can use audio cassettes for ten minutes or thirty minutes and then complete the period with appropriate discussion or lecture. New equipment allows teachers to record from the console either the video soundtrack or an audio tape for students to take home for further work. These same teachers are often willing to spend time with graduate students explaining how the lab can be used effectively for language learning. When such sessions are posted with open invitations, other teachers, especially those new to the profession drop by to visit and listen. An introduction to the Language Learning Laboratory Techniques and Management is scheduled for all methodology courses. This class time is spent describing general bibliographies of both technical materials and professional teaching materials, current trends, a historical overview of lab development, and a hands-on session in the lab.

Students preparing to "student teach" often request more time in the teaching lab, either observing teachers or working with the console. When new teachers are given lab responsibilities, a set of instructions and suggestions pertinent to lab use at Georgetown University is given to them for future reference. (A sample of this checklist of responsibilities for the lab supervisor at Georgetown is included as Appendix A.)

Because of scheduling, it is always difficult to get teachers together for a meeting, but introducing new teachers to both colleagues and the equipment (labs) is important. During orientation and registration, coffee and donuts or wine and cheese might hold an extra plus to entice faculty to visit the language laboratory. Student staff can demonstrate both equipment and new programs. Giving teachers an audio copy of new language programs or even the audio soundtrack from a new video program will encourage them to listen to the material as well as allow them to check particular segments when students have questions in class about a taped exercise. Having cassette players available to loan to the faculty for the semester is also helpful.

The language laboratory can also provide teachers with small services in the media field. Dry mounting and laminating maps and posters helps brighten the classroom and provide information. Stencil lettering or machine lettering improves the legibility of signs and handouts that teachers sometimes need. Student staff members enjoy helping teachers make overhead transparencies and slides. Video recordings in the classroom or as homework assignments can keep several student staffers busy during the week as they supervise student class projects and run the equipment. The investment in equipment and supplies is small, yet the rewards for providing teachers with needed materials are great. These projects build rapport and get the teachers in to the labs where they become familiar with other uses of the laboratory facilities.

Developing a library of articles on teaching techniques is important. Journals continue to publish new teaching ideas and approaches. Having photocopied materials or extra journals available for loan encourages some teachers to read articles on lab use that they might not have time to research on their own. Photocopying the first page of a new article or a valuable older article and sending it to a few faculty members also creates interest. Maintaining catalogues and flyers of available software as well as any sample materials helps alert teachers to new materials and developments. Most conferences have their sessions audiotaped. These programs, or at least listings of those available from AECT, TESOL, ACTFL, and NEC, would help instructors locate new techniques and ideas.

It is also important to be available for faculty discussions. Talking over lunch or coffee helps explain some of the various ways taped materials can be used. A number of the ideas suggested create more work for the lab director initially. Suggestions, ideas, and sample projects often develop slowly until that teacher has his or her own idea about the project. For instance, editing commercial materials takes time, but often the result meets specific or routine needs far better than the original. Single page handouts describing audiovisual skills help teachers to decide if an AV project is helpful in that specific classroom situation. Giving out tape guides and lists of holdings in specific languages provides a convenient ready reference for teachers as they prepare their lectures. This will allow the teacher to save time and use the lab facilities more often.

Helping students put together radio plays, commercials, or skits is another way to involve lab facilities and introduce new ideas to the classroom. (A planning guide for these types of productions is found in Appendix B.) Video is certainly a popular media, but audio works just as well in some cases.

The lab atmosphere and room conditions are also extremely important to the learners. Language posters, maps, displays, and plants create a good environment. Make sure that the cleaning crew is in regularly and that maintenance includes regular painting and touch up. Special exhibits and loan tapes also arouse interest in language learning and the facilities. At Georgetown, we try to put up new materials twice a semester, featuring foreign movies and posters, language culture clubs, embassy activities that are open to students, and even local activities with the news written up in several languages. Loan tapes include pop music, foreign radio broadcast, foreign language speeches by world leaders, anything that might be of interest to someone. Students may bring material that their families have sent them, or a visitor may offer a new music tape or radio program. Juniors, after returning from a year abroad, find any available foreign news programs and movies of great interest in helping to maintain oral skills. These extra activities create interest in the lab as something other than a place just for homework.[1]

Helping language clubs acquire full length movies, equipment, and facilities for special showings not only improves student interest in the language but also frequently draws faculty members into the lab, suggesting new ways to them to involve the lab in their courses. Talking with the students who use the lab is an excellent way to gain information and ideas about lab organization and policies that should be communicated to teachers. Walking through the labs allows the director time to observe or correct problems. Teachers should also be encouraged to come by during busy periods to see what materials are used most frequently. Monthly statistical reports on lab usage are valuable to teachers, to departments, and to administrators. These same figures are good data during budget requests. Circulating lists of new acquisitions to departments can often suggest new sources of information as well as keep the departments informed of how others are using the lab. The administrators should be invited for frequent visits, or encouraged to drop in, so that the functions provided by labs are understood as a part of the overall university program.

Conclusion

Lab directors must investigate the needs of their institutions and then work to help teachers meet these needs. Moreover, lab directors must establish a good rapport with colleagues, remaining open and willing to explore new ideas and continuing to investigate new technologies. Accomplishing these tasks and involving faculty members in the lab requires dedication and perseverance on the part of the lab director, but the rewards will be significant for the students, the faculty, and the institution. There is more to being a lab director than just managing a facility, being a public relations person, or directing a resource center. The lab director must be an integral part of the teaching program, working with teachers and students to attain maximum use of lab facilities. The most essential aspect of lab management, regardless of how it is done, is to continue to involve faculty members in the language laboratory. Only through this kind of involvement can the technology and lab facilities become obvious assets to students, faculty and institutions alike.

Note

[1] An exhibit that created a considerable amount of comment was to cut out the letters that spell "Hello" in several languages. It took some work to draw the letters, ink them in, and cut them out as well as pin the letters to the board. The next problem was to correct those that were wrong or to change those that were formal to a more informal phrase. The second problem was responding to questions like "why was my language not put up?" So the exhibit spread to two areas and contains 23 languages. The project created interest among students and the student staff had fun putting it together. One past Christmas, students were invited to make a paper item to hang on the tree: among the items were: Japanese origami, Polish stars, Norwegian snowflakes, German angels, chains of Hungarian paper dolls, and two dimensional Swedish trees. This also brought in students not taking language courses who wanted to practice language skills and contribute to the tree. This year, we would like to have a special Christmas tree with ornaments on it from different countries, not necessarily Christmas ornaments but a small item reflective of that culture.

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APPENDIX A

Handout for Interns and Teaching Assistants Describing General Responsibilities of Lab Supervisor in Lab Center Georgetown University

A. Organize, Evaluate, Revise, Re-organize

1. Service orientation to faculty and students (These items should be covered; others may be added to the list.)
    - a. Post hours, schedule student employees, post holiday closings.
    - b. Schedule, write and supervise student orientations.
    - c. Order all requests forms in sufficient numbers
    - d. Using request forms and meter forms, prepare monthly statistics.
    - e. Observe interaction of labs and personnel, being alert to activities and problems and paying attention to details; be prepared to make suggestions and follow through the implementation of necessary adjustments.
2. Primary obligation of Lab Center is to provide quality audio programs.
    - a. Check series frequently, remake as necessary and on a regular schedule, especially heavily used programs.
    - b. Duplicate commercial originals onto cassettes as required.
    - c. Set up and supervise audio recording sessions.
    - d. Follow guidelines for audio programs for quality work and consistency.
    - e. Type purchase requisitions for new language programs and replacements as needed.
3. Supervise actively the student personnel.
    - a. Assume direct responsibility for hiring, training, and supervising.
    - b. Organize, evaluate, and maintain schedules.
    - c. Maintain personnel and student work study directives and payroll.
    - d. Observe, adjust, and maintain areas needed by students.

B. Assist director in supplementary needs.

1. Study software production programs, practice with

materials and assist when necessary with faculty programs.

2. Maintain professional contacts, read current literature and remain familiar with current teaching and technological methodologies.
3. Support Lab Center staff by providing consistency and professionalism among faculty and staff.
4. Contribute and enhance the current offerings of the Lab Center through personal involvement.

C. Typical daily supervisory tasks

1. Be in lab several hours each day to check to see if it is clean and neat, answer questions, decide on what needs to be replaced or reordered.
2. Check up to see if the student assistants are having any difficulty in schedules, payment, questions etc.
3. Check the equipment and take precautions to keep them working well.
4. Check the master drawers to see if they are orderly and if the upkeep is good.
5. Check the catalogues to see if there are any torn pages, missing pages or other problems.
6. Check the special projects' current status.
7. Familiarize yourself with new formats from sources.
8. Check the office to see if the files and equipment are in good working order, if the supplies are enough and if there should be a general meeting scheduled with the director.

APPENDIX B

Handout for Student Productions

A Format for Visual Planning

A. State several ideas or problems and for each:
  1. Develop with a few lines
  2. Decide on audience level
    a. 2nd year French course
    b. teachers
    c. general public
  3. State purpose and length
  4. Decide on treatment
    a. informational
    b. dramatic
    c. other?

B. Now define one idea or problems with the four factors described above; this will be the goal of the program. Everything that you do should illustrate this idea.

C. Visual Materials needed:

item	advantages	limitations	cost to make	time required

D. Supplementary materials:____________________

E. Audio:
equipment needed for:
narrator____________________
music____________________
supplementary sounds____________________

F. Cost:
  1. equipment rental
  2. slides preparation
  3. materials: posterboard and inks for signs and artwork
  4. audio tapes

G. Production Factors:
  1. equipment reservations
  2. studio time
  3. preparation of artwork, developing time for slides
  4. script writing, revisions

H. Research: Are your plans realistic? Can the research be done within the designated time? Can schedules for work sessions be made and followed? What can be done if problems develop?

I. Framework: Type out on 3x5 cards for each major fact to be presented.

J. Prepare a storyboard: Make cards for each slide or visual to be used, match with appropriate facts. Check your results: do the slides illustrate the story, is there continuity? What are you missing?

K. Prepare a detailed script.

L. Illustrate the script.

M. Final analysis: Does the finished program answer or illustrate the proposal? What needs to be changed? Do the slides adequately illustrate the narration? Is there a smooth flow of the material? Is the idea clear? Is it good? Too long, weak area? What follow up is necessary? Has credit been given when needed, copyright permission?

N. Rehearsal and then presentation.

O. Final evaluation: Thanks to be expressed to those that helped; return any borrowed or rented equipment; finish any clean-up chores. Turn in a script if one is to be filed with the presentation. If possible, write down any short cuts or aids that could have made the work smoother. Describe briefly any problems and how they were handled. Attach these to the script.

APPENDIX C

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Nonbehavioristic Learning Theory and The Language Laboratory

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Introduction

Kurt Lewin once said that there is nothing more practical than a good theory. In this chapter I will propose that the single most important thing that could be done to provide a vision of the place of the language laboratory in second language instruction is to construct an adequate theory of human learning and skill acquisition. But learning theory as it currently exists in psychology is not adequate to the task.

For many years now, learning theory and behaviorism have been synonymous, but learning theory is too important a topic to be left to any one school of thought. The behaviorist/functionalist school, the generative grammar structuralist approach to language, and the information processing approach to cognition have all given us important insights into the nature of learning, but no one of them alone or even a combination of the three is adequate to the task of providing a theoretical foundation for the insights of the past 25 years of research in second language acquisition. Some of the missing principles are, I think, available in the philosophical literature on the psychology of skills (Polanyi, 1962) and J. J. Gibson's (1966, 1979) ecological approach to perception.

The inadequacies of both learning theory and cognitive theory as they now stand are thrown into bold relief by recent advances in linguistics, particularly the "communicative competence" pedagogy of Asher (1969), Terrell (1977), Krashen (1981), and others, and the observations of Wong-Fillmore (1976) concerning the natural units of language acquisition in a second language immersion setting. But these insights, observations, metaphors and principles are still floating in a theoretical vacuum without a firm undergirding of fundamental psychological principles. The underlying psychological principles are beginning to be understood, but what is needed is an adequate theoretical structure that brings the applied second language metaphors into a coherent total pattern with the principles of perception, learning, and skill acquisition that are to be found within mainstream academic psychology.

The central proposal of this paper is that although the second language theorists have developed a conception of learning that is potentially epoch-making and in many ways more advanced than learning theory as it exists in psychology, "going it alone" will not be the best path for second language theorists. Although many of their observations and insights are seminal, much of the implicit psychology in their models is misleading and inadequate. It will be worth the effort to rebuild learning theory at the most fundamental level, using the second language acquisition observations in combination with other recent theoretical developments in psychology. This new kind of learning theory will then lead to much deeper insight into the nature of language learning and language acquisition that will have myriad practical applications, even for the definition of the place of the language laboratory in the second language curriculum.

Second Language Research: Implications for Learning Theory

All that has been said up to this point is promissory, but in the remainder of this chapter an outline will be sketched of the form such a theory of learning would take. But first it will be useful to summarize some of the major insights from the past twenty-five years of second language acquisition research and practice.

A. Five Insights from Second Language Acquisition Research

Insight 1: Social psychological factors such as attitudes toward the target language and culture are at least as important as cognitive factors in determining success in second language acquisition. In the late 1950s Lambert and his colleagues began a concerted effort to understand the socio-cultural dynamics of bilingualism and the social conditions that are most conducive to second language acquisition. Some of their ideas have had a major impact upon current thinking. Whereas the emphasis in the past was primarily upon principles of learning, instruction and cognition, these language scientists have emphasized the ways in which language use is fundamentally an expression of attitude and personal identity. Attitude toward the language and toward oneself relative to the two linguistic communities are central considerations in accounting for success in acquiring a second language (Gardner and Lambert, 1959, 1972). It has become increasingly clear that much of the "failure" to learn a second language that has been attributed to a lack of cognitive ability was in fact due to social psychological factors: resistance to a dominant culture, a refusal to betray one's social group, an expression of hostility toward those who speak the second language, etc. We have increasingly come to view spoken language as a means of asserting personal identity and one's loyalty to a culture or group, as well as being a way of transferring information and expressing ideas. The process of second language acquisition cannot be understood without understanding social psychological factors such as interpersonal dynamics, cultural attitudes and intergroup conflicts.

Insight 2: Immersion in the target language is a much more efficient way to acquire a second language than explicit instruction in that language. This second insight concerns the optimal cognitive conditions for the acquisition of a second language. One of the great lessons in second language acquisition in the past 20 years has been the astonishing success of language immersion programs. When Lambert and his colleagues were first planning the St. Lambert project (Lambert and Tucker, 1972) the reaction to their idea of teaching English Canadian children entirely in French from kindergarten on ranged from serious doubt to horror and disbelief. Even the investigators were surprised at how well the children fared. Many theorists in the past had argued that the primary cause of deficit in linguistic minority children was the fact that they were instructed in a language other than their own. However, the St. Lambert children were found in successive years to be essentially equivalent in fundamental skills to the French control group as well as to the English control group, despite the fact that they were instructed in a language other than their own. The St. Lambert Project demonstration has been an important one for the debate of whether bilingualism helps or hurts intellectual development. But for the purposes of this chapter we are much more interested in the demonstration that immersion programs such as this give the students a high level of skill in the second language in a relatively short period of time. These observations are consistent with the results of Carroll's (1967) survey of college majors in which he found much better performance on the Modern Language Association *Foreign Language Proficiency Test* among those students who had spent time abroad in a host country environment than among those whose experience with the language was restricted to structured classroom situations. This essential of learning will have to explain. Why is immersion in a second language so much more effective than classroom instruction?

Insight 3: Language is a skill, and must be acquired indirectly as a tool or medium through which other information is communicated. A number of second language theorists have expanded upon the observation of the superiority of the immersion method and spelled out the implications it has for a science of second language instruction (Asher, 1972; Krashen, 1981; Terrell, 1977; Dulay, Burt & Krashen, 1982). The primary insight can be summarized by saying that language acquisition is a different thing than language learning, and that the traditional second language class has been teaching students *about* the language rather than creating proper conditions for *acquiring* the language as a usable tool. That one insight is perhaps the most important advance in the history of second language pedagogy. It is closely related to the distinction in cognitive psychology between *knowledge* and *skill.* The traditional approach to second language instruction has been to transmit explicit *knowledge* of the target language: verb conjugations, rote memorization of vocabulary, rules of subject-verb agreement, nominative vs. dative case, etc. The new approach is to give the student experience with "comprehensible input," adding just enough new vocabulary each time to pace progress, but not so much that it becomes incomprehensible. In this way the student acquires skill in the target language a little at a time, learning by hearing.

Krashen (1981) has been the primary advocate for this "comprehensible input" approach to acquiring a second language. He seems to view listening comprehension as the primary skill in effective language acquisition and argues that it is a mistake to expect language production too early, that just as a toddler does much listening before ever speaking, so speaking will naturally progress as the student acquires the ability to "receive" within the language. He and his colleagues (Dulay, Burt and Krashen, 1982) cite a number of studies supporting the value of this "silent period" in effective language acquisition.

The learning theory articulated by Dulay, Burt and Krashen (1982) is a simple one that holds that there are two kinds of learning, "conscious" (as in a classroom) and "subconscious" (the "communicative competence" approach) and that the latter is by far the most effective. They also posit three cognitive processors, a filter (that blocks language acquisition because of emotional, social psychological factors), an organizer (that corresponds roughly to Chomsky's Language Acquisition Device) and a monitor (an interfering "self-consciousness" factor that is especially active in a "classroom" approach to language).

Although some question Krashen's monitor theory, the value of the silent period, and his almost exclusive focus upon listening comprehension (Brown and Williams, 1983), few who are familiar with the past twenty years of second language research would question the overall thrust of the approach away from rule learning and toward communicative competence. There seems to have emerged a general agreement among most second language theorists that languages are most effectively acquired as a medium of communication about some "real" topic. A crucial aspect of language as a skill is automaticity, and explicit instruction in a language is relatively ineffective as a way of developing linguistic skill with the automaticity and habitual subtlety that is required for actual communication. That can only be acquired by practice and experience in actual communication, both receptive and productive.

Insight 4: In the natural acquisition of a second language a high percentage of the person's speech during the first year will consist of holistic functional units (formulaic utterances) the internal structure of which is not understood. Lilly Wong-Fillmore (1976), in perhaps the most often quoted unpublished dissertation in linguistics, has remedied some of the misplaced emphasis of the "input hypothesis" by shifting attention back to the importance of developing productive (as opposed to receptive) communicative habits and skills in the second language. Her approach was to conduct an intensive study of the process by which five Spanish-speaking children acquired English in a naturalistic immersion setting over the period of one year. The children were between five and a half and eight years old, knew no English when the investigation began, and received no explicit instruction in English during the one year period of observation. This dissertation is a rich source of information and provides a number of important clues for constructing an adequate theory of language acquisition.

She observed that success in acquiring English was not so much dependent on cognitive ability but rather on interpersonal effectiveness:

> The success or failure of the learner's efforts was seen to depend in good part on his ability to establish and maintain social contact with the people who could give him the input and the contexts he needed for learning the new language. His success, in short, depended not on cognitive skills alone, but also on having the social skills that enabled him to participate in the situations in which the new language was used....The factors that seemed of greatest importance...were personality, interest, motivation,

and tendencies to engage in language play. (Wong-Fillmore, 1976, p. viii)

A second major observation concerned the unit of analysis employed by the children in dealing with this new language. It was not single words, as might be expected, but rather holistic functional units that she termed "formulaic utterances." She observed that at the very beginning of contact with English, all five quickly acquired repertories of holistic expressions (such as "How you do dese?") which they knew how to use "more or less appropriately" and they put them to "immediate and frequent" use (p. 640). Others had noticed this phenomenon of holistic imitation in second language learners (Huang, 1971, for example), but viewed it as secondary to the acquisition of grammatical rules. Wong-Fillmore's unique contribution was to demonstrate that this "strategy of acquiring formulaic speech is central to the learning of language", that it gives the learner control of a number of functional units that can be contemplated and analyzed in later stages to produce a tacit knowledge of the language structure. But, at the beginning they are used as an undifferentiated holistic operant. As she argues, "these formulas were expressions which were highly situational in use, and could be learned and used with the learner knowing nothing about their internal structures" (p. 640). She also found that formulaics that were used whole in the earliest stages of language acquisition were combined with one another in later stages to form more complex sentences. For example, the earlier used formulaic "How you do dese?" was in later stages combined to form "How you do dese in English?" or "How you do dese little tortillas?" or "How you do dese September por manana?"

It is surprising how much of the speech of her five subjects during this first year of English acquisition consisted of formulaics. When she divided the utterances into "productive" versus "formulaic" (and even used the conservative strategy of counting "combined formulaics" as productive) the percent of formulaics for the five children over the four periods of observation ranged from forty percent to one-hundred percent, with the mean being approximately seventy percent (Table 47, p. 642).

Toddlers who are working on their first language make extensive use of the formulaic. A few weeks ago when my 22 month old daughter asked for a piece of birthday cake, I noticed there was some left-over frosting. Since this is mostly all she eats of the cake anyway, I gave her a bite of that with a spoon. Then I asked her "Is that enough or do you want one more bite?" She said "that enough" until I started to put it away, then she said "one more bite." She ate that and I asked again and she said "one more bite." An older child would have probably said "I want lots more bites," or would have laughed and thought it humorous to say "one more" so many times. But she seemed to be using it seriously and as a formulaic, without much understanding of the words themselves. It brought about the desired state of affairs. Perhaps we all do that to some degree. Most of us know what *hors d'oeuvres* means as a unit, but have no idea of the straight across French translation. We are seldom fully aware of etymological history, but use the words that work.

Insight 5: The so called "critical period" for language acquisition is caused by social factors rather than physiological ones: assimilative motivation is greatest for adolescents and children. A few years ago I was giving a presentation at a university in Japan on the beginnings of our theory of second language acquisition (Brown & Williams, 1983), and one of the linguists present said, "How does your theory deal with the observation that children and adolescents are more efficient in acquiring a second language than adults? If a second language acquisition theory can't explain that, it can't explain anything." That's a curious criterion for adequacy. It seems that the prior question might be whether it is firmly established that children and adolescents are in fact more efficient. In summarizing the results of a number of surveys, Graham (1984, pp. 82-83) concludes that it is true that after extended periods of residency in the second language environment the younger learners do surpass their adult counterparts, but within the first year of language and cultural immersion, children were not found to perform as well as adults (Snow & Hoefnagel-Hohle, 1978). Also, it was found that when the learners are not exposed to a second language peer group, children are not superior to adults even when compared over several years of exposure (Oller & Nagato, 1974).

The time-honored explanation for the superior language learning ability of children and young adolescents is, of course, the "critical periods" explanation advanced by Lenneberg (1967, pp. 142-182). He argued that the cause is physiological. In essence he held that the speech function of the brain is not completely lateralized until about age thirteen and that the plasticity of the unlateralized brain is necessary for complete language acquisition. However, in a re-examination of the studies upon which his conclusions were based, as well as other more recent evidence, Krashen and Harshman (1972) and Krashen (1973) have argued persuasively against the Lenneberg lateralization hypothesis. They hold that lateralization is essentially complete by the age of five, which calls into question the already tenuous and circumstantial connection between the age of lateralization and the critical period for second language mastery. (For additional criticisms of the lateralization explanation of a critical period in language acquisition see Dulay, Burt and Krashen, 1982, pp. 87-90.)

Graham (1984) has suggested a much more compelling explanation for the observations of the superior second language acquisition performance of children. He argues that the observed "critical period" in language acquisition is due to the increased sensitivity of adolescents and children to peer group evaluation. He takes as a point of departure Labov's (1972) claim that the most consistent vernacular is found among adolescents and that in neighborhood gangs in Harlem "the group exerts its control over the vernacular in a supervision so close that a single slip may be condemned and remembered for years" (p. 256). Such control is undoubtedly more through ridicule than formal censure. As many psychologists have observed, there is never a time in life when there is greater concern with identity (Erickson, 1968) or a greater vulnerability to peer group influence than during adolescence.

Graham (1984) refers to this as "assimilative motivation," and argues that the reason that the child develops native-like speech is because he must do so in order to be accepted as a member of his peer social group. This is not to be confused with the "integrative" motive of Gardner and Lambert (1959, 1972). Graham argues that it doesn't matter whether or not the child *values* the group or *likes* the people in it. It's a matter of social survival.

Schumann (1978) has documented the way in which second language acquisition "fossilizes" or "pidginizes" at a primitive stage of development when the learner lacks motivation to become part of the target cultural group. This may be precisely why adult learners of a second language seldom acquire native-like proficiency. They acquire enough of the language to suit their communicative purposes at which point further development is unnecessary and therefore arrested. Without the intense peer demand for phonological conformity that faces adolescents (and presumably children), they don't have adequate incentive for the additional effort necessary for developing native-like pronunciation. Adults may even intentionally keep some markers of their first language as a symbol of loyalty to their original linguistic community. But even the adult learner who is relatively motivated to become assimilated into the new language community will not match the intense peer group sensitivity of adolescents and pre-adolescents and will therefore not acquire a native-like performance.

B. The Primacy of Social Factors

Of the five insights given above, the "input hypothesis" has had by far the greatest impact on second language instruction. Almost everyone in the second language teaching community is aware of it, and many, if not most, have adopted it at least in part. There are, however, strong remaining pockets of resistance. In the future, attention will probably shift to include the important contribution of production to second language acquisition, especially production of verbal operants (formulaics). As Wong-Fillmore has shown, they are particularly effective as a way of giving the learner readily accessible "grist for the mill," memorized usable units that can be used to work out rules and relationships.

Obviously the learner must first be able to "hear" verbal units and have some rudimentary understanding of the function of such units within the social context before those units can be reproduced by the learner in a similar context. In that sense perceptual learning must precede production. But the crucial issue is whether it therefore makes sense to focus upon receptive ability and expect production to automatically follow. Most of the evidence that is used to argue for a "silent period" (Dulay, Burt & Krashen, 1982, pp. 22-23) consists of anecdotes and case studies that demonstrate that in the course of natural acquisition of a second language (without instruction) many learners develop a great deal of receptive ability before they begin producing speech. Wong-Fillmore's observations of natural acquisition, on the other hand indicate that certain kinds of production can play an important role in the second language acquisition process. What needs to be examined is whether, in the engineering of institutionalized language instruction and acquisition exercises, it is more effective to focus upon receptive skill and wait for production to emerge, or whether systematic acquisition of a number of useful formulaics is more effective.

If there is a central theme to all five of these insights it would probably be something like: "Language learning theory must in its essence take into account interpersonal dynamics, cultural identity, and intergroup attitudes, for these social psychological factors are the crucial elements of success." Insights 2, 3 and 4 above may not at first seem to be social psychological, but the proposition here is that when we understand their significance at the deepest level, they are. Some of Wong-Fillmore's statements at the end of her dissertation, where she summarizes, explains, and interprets her observations, make a strong case for the importance of social psychological factors (as opposed to cognitive or instructional factors) in accounting for the effectiveness of second language acquisition. She maintains that the primary purpose or function of the "formulaic utterance" is to bring the person into social interaction with the target group. She discusses three "stages" that she observed in the second language acquisition process:

> The first stage is characterized by a general concern not so much for communicating as for getting a handle on the language and establishing a social relationship with the speakers of the language....Thus, the children in the study seemed content to limit their communicative efforts to phatic expressions which kept them in social contact with their English-speaking friends. This they did through the learning and use of formulaic expressions whose value was more frequently interactional than informational (Wong-Fillmore, 1976, p. 659).
>
> The second stage is one in which the central concern is on communication--the goal is to get the point across, one way or another. It is at this stage that the learner begins to create novel sentences with the patterns he has derived through the process of analysis. One of the strategies followed during this stage is that of combining formulaic units freed from earlier formulas with newly acquired lexical units to produce sentences which may or may not resemble sentences in the language (p. 662).

The third stage is the one in which the learner is concerned with correctness, but even here it is more of a social concern than an academic one. Only one of her five subjects, Nora, progressed very far into this stage in the year during which she observed them:

> At the end of the study year, Nora's speech differed from that of her English-speaking playmates only in details, but there was evidence that she was in the process of working on eliminating those differences. One of the obvious ways in which Nora was making use of the speech of others to develop her own during this stage can be seen in her practice of picking up expressions her friends used and inserting them immediately into her own sentences. What this kind of activity did for her was to bring the utterances produced by others up closer, in a manner of speaking, so that she could see better how they differed from her own (pp. 664-665).

Apparently imitation plays a major role in language acquisition even at the later stages.

Some very interesting social psychological principles emerge as we take a closer look at the impact of immersion programs.

Although the initial acquisition of the second language is the product of the teacher's skill in the target language, and the children model their communication primarily upon him or her, it is quite clear that after a year or two of immersion experience they take one another as their peer reference group for pronunciation and dialect. Although they develop a very satisfactory level of communicative ability in the language, their "dialect" will not be a reflection of the more standard form used by the teacher, but rather a kind of "interlanguage" that they themselves develop. Cohen (1982) has observed that even when native speakers of the second language are present in the class, they too may begin to use this peer interlanguage form of speaking. Consistent with this, other linguists have noted that when a family moves into a new dialect area, children acquire the dialect of their peers rather than that of their parents (Stewart, 1964; Labov, 1966).

A number of second language theorists have commented on the paradoxical nature of the findings of immersion research. Why is immersion so effective in cases such as the St. Lambert Project alluded to above (where children from the dominant culture are immersed in a minority language) and yet not effective in the reverse situation when minority group children are immersed in the language of the dominant culture. At least one answer has been given in terms of group dynamics and cultural identity. For children in the dominant culture there is no real danger of losing their linguistic identity by acquiring the second language, since they are continually immersed in the majority language outside the school setting, and it will be the language of opportunity and advancement as they take their places in the dominant culture community. As members of the dominant culture they are in a more secure position linguistically and socially, and, in Lambert's (1984) words, bilingualism for them is an "additive" experience. But the minority students' identity is threatened as they enter into the majority language and culture, unsure of their position within that culture to begin with, in danger of losing their own language and culture through assimilation into the larger community, and from the beginning at a disadvantage in that world. Lambert (1984) terms the bilingualism of the minority group children "subtractive" bilingualism. So-called "bilingual education" programs in the United States, in which minority students are schooled at least partly in their native tongue before beginning instruction in other subjects through English, are based upon this additive vs. subtractive bilingualism distinction and the belief that strengthening minority children in their own language and culture will provide them with the security and confidence within their own language that will allow them to then add to it the language of the dominant culture.

This observation of the effectiveness of immersion programs for dominant culture children but not for minority group children demonstrates that "comprehensible input" is certainly not the whole story in accounting for the effectiveness of second language acquisition. A major problem with the "input hypothesis" is that it disregards the intentions, the strategies, the self confidence, and the cultural and social needs of the language learner. The same input that may be very effective in an additive bilingualism situation may be very ineffective in a subtractive one.

This argument is similar to the assimilative motivation explanation Graham gave for the superior performance of younger learners. The crucial issue is the way the learner approaches the task, not the instructional strategy of those who may be teaching him or her. Likewise, in a natural acquisition setting the nature and structure of the language input encountered is not the crucial factor, but rather the way the learner views and approaches the task. Adults approach it as a "learn the language" task and are less effective. Children and adolescents approach it as a "fit into the social group" task and are more effective. Obviously there could be important interactive effects in which some instructional strategies are found to fit better with some intentions or "sets" with which the learner approaches the language, but a focus only upon the "conditions of learning" (as Gagne, 1977) calls them will not be nearly as effective as a focus upon the intentions of the learner in interaction with the instructional methods.

On the basis of these insights and observations from the second language acquisition literature we are ready to specify five "design specifications" for an adequate theory of learning:

1. It must be more than a specification of the optimal instructional conditions for learning to take place. The intentions of the learner and the way the learner approaches the task, must be central considerations in accounting for learning and skill acquisition.
2. It must be a social psychological theory as well as a cognitive one. It must be broad enough to account for the profound effect of social factors such as "assimilative motivation" or cultural attitudes upon the learning process.
3. It must be a theory that accounts for the "educating of the senses," the way in which one begins to hear meaningful units in what was at first a confused conglomerate of sounds. This is a beginning toward accounting for the next design specification.

4. It must account for how one imitates these meaningful or functional units. It must also account for how one progresses from the imitative use of holistic verbal operants to a tacit knowledge of the implicit structure of the language, which finally allows one to productively create new phrases and sentences.
5. It must account for the observation that one acquires a language more effectively by using it in communication rather than by focusing upon the language directly. Related to this, it must account for automaticity in language and in other skills.

The Rebuilding of Learning Theory

A theory of this magnitude is obviously a major undertaking. It would not be possible in this chapter to specify a learning theory of this kind in any detail and show that it meets each of these criteria. Rather, in the remainder of the chapter we will outline in broad strokes some of the major characteristics of learning theory as it has developed in psychology and educational psychology, and then outline another approach to learning that could potentially become the kind of learning theory just described.

A. Behaviorist Learning Theory

Undoubtedly the overthrow of behaviorism in the 1960s was necessary and liberating. But before the old ship sinks, it may be worth looking to see if there is anything worth salvaging. One good candidate is Skinner's concept of a verbal operant. For some of us who began our study of psycholinguistics two or more decades ago, Wong-Fillmore's "formulaic utterance" is surprisingly reminiscent of Skinner's (1957) categories for a functional analysis of linguistic behavior, the "mand," and the "verbal operant." Actually, these concepts are much older than Skinner's use of them. They date back at least to linguistic theorists such as McGranahan or Buhler in the 1930s (Polanyi, 1962, p. 77). What is most surprising is how much more sensible the idea of a verbal operant now seems after reading Wong-Fillmore's detailed observations. Most of us probably agreed with Chomsky's (1959) devastating criticism of Skinner's book in those days, and probably still do for the most part, but these recent insights suggest that it may be worth re-reading. Note Skinner's description of "echoic behavior":

> The speaker acquires echoic operants of many sizes. He tends to repeat words, phrases, or even sentences. Eventually his behavior shows small echoic units approx-

> imately the size of the speech sound, either as the result of direct educational reinforcement or as by-products of the acquisition of larger units. Only because of this minimal repertoire is he able to echo verbal patterns heard for the first time (Skinner, 1957, p. 115).

This whole description relies heavily upon the assumption of an ability to imitate. Many psycholinguists have seen imitation as a behavioristic principle (for example, McNeill, 1970, p. 27) and have seemed to therefore think that they must argue against it as a possible explanation of language acquisition. But we should have never let the behaviorists preempt such an important concept. Behavioristic theory could not begin to explain it. Wong-Fillmore's observations make a strong case for the central importance of imitation in at least the first year of second language acquisition. The language acquisition theorists who rejected imitation because of its behavioristic taint may have been guilty of throwing out the baby with the bath water. It may be time now for a serious consideration of the place of imitation in the second language acquisition process, apart from its historical behaviorist-learning-theory context.

Another concept that has been discarded too hastily because of its behavioristic cohnections is the concept of "habit." It seems that one of the major contributions of Wong-Fillmore's work is to demonstrate the importance of well practiced verbal habits in "bringing the language up closer" for the process of insightful rule formation. Too often the place of verbal habits in the acquisition of language has been dismissed with a glib and cavalier attitude, deferring to the authority of Chomsky's (1959) refutation of behaviorism and to the later rejection of behaviorist principles by information processing psychologists, as though these things have definitively proven that no behaviorist concepts need be taken seriously (Dulay, *et al.*, 1982, pp. 107-108; 140).

The fundamental principle of behavioristic learning theory is the principle of association. But it is an artifact of assuming that things were separate in the first place. This misleading idea that stimulus units are separate and discrete is referred to as "perceptual atomism." It necessitates finding a mechanism or principle for putting the "atoms" back together--associationistic principles such as contiguity ("the mind's glue"). The old learning theory was based on associations, on concatenation, the building up of S-R (stimulus-response), S-S (stimulus-stimulus) and R-R (response-response) connections. The new should be able to account for parsing and segmentation in perceptual learning. In the old learning theory, to gain knowledge was to connect more and more units. The proposed new learning theory will have to account for how one finds structure and successfully segments a previously undifferentiated Gestalt into meaningful units. It is based upon the premise that it is not possible to explain learning or knowledge without putting meaning at the center of our theories.

B. Improving Upon Current Cognitive Science and Instructional Theory

In the early years of the cognitive revolution it appeared that the lifting of the behaviorist restriction against mentalism was a very salutary thing. In the foundational work of the 1960s, the hypothesized mental processes (such as the "icon" or "exhaustive memory scanning") were not far removed from the empirical observations. However later models became much more grandiose in hypothesizing mental structure and the hallmark of the cognitive models and theories of the 1970s became the "flow diagrams" that show the relationship between all kinds of hypothesized cognitive processors, from the "short term memory store" to the "filter" that blocks out threatening inputs. Williams (1985) has criticized this kind of unbridled mentalism:

> Unless it is remembered that the meaning and indeed the existence of the structure is limited entirely to the observation itself, the postulation of structure can easily lead us to unwarranted reification of the components of the model (p. 6).

The habit of mentalizing seems also to have caught on among second language theorists. The "filter," the "monitor" and the "organizer" are discussed by Dulay, Burt and Krashen (1972) as if they were empirically established components of the mind, rather than loose metaphors based upon tentative research observations.

Implicit within these information processing models is the hypothesis that the main problem with behaviorism, the reason it didn't provide us with an adequate account of actual human knowledge acquisition, is because it didn't identify the mental events underlying the learning process. But Wong-Fillmore's (1976) work puts the problem in bold relief. Both the behaviorist approach to learning and the information processing approach are inadequate because they assume too much. They both begin with artificial hypothesized components and try to build up knowledge of the learning process piecemeal by a series of small, controlled experiments based upon these artificial entities, rather than proceeding from careful holistic observation of the learning process in a naturalistic setting. Wong-Fillmore's detailed naturalistic observations have given us more understanding of the process of learning a second language than all of the flow diagrams of the cognitivists and the stimulus response models of the behaviorists of the past eighty years.

But a great deal of the power of Wong-Fillmore's demonstration may derive from the earlier demonstration (Carroll, 1967; Lambert & Tucker, 1972) that natural language acquisition is more effective than formal instruction. Such a demonstration makes us much more interested in understanding the process of untutored acquisition and gives a kind of authority to Wong-Fillmore's observations that they would not otherwise have had. Language learning may be a unique case in that it allows one to study learning in a "naturalistic" setting, that is, with learning separated from instruction. It is not easy to imagine how similar observations could be made of other kinds of learning. For example, what would it mean to investigate the learning of mathematics in a "natural" setting, separate from traditional methods of instruction? It may be that we have here a paradigm case of serendipity--the focus on language acquisition in its naturalistic state has made possible a productive transformation of vision with respect to the process of learning that would not follow from examining any other kind of learning.

We desperately need an adequate taxonomy of the various kinds of learning and their relationship to one another. We in fact have the prototype of such a work in Gagne's 1977 book The Conditions of Learning. However, like Krashen's "input hypothesis," the primary emphasis of Gagne's book is on the instructional conditions that will produce learning, whereas, as we argued in the five insights section above, we hold that structure of the input is not the primary factor in determining the effectiveness of learning, particularly in language learning, but the way the learner approaches the task (intentions, focus, attitudes and motives). What is needed is a taxonomy that focuses on the intentions and the mental set of the learner rather than on the proper instructional conditions.

C. Toward a More Adequate Account of Linguistic Automaticity

"Conscious" and "subconscious" as used by Dulay, Burt and Krashen (1982) to describe two types of language development needs to be further elaborated. In earlier formulations, the former was referred to as "language learning" and the latter as "language acquisition." We could say in the common parlance of psychology that language learning and language knowledge are "conscious" (the term that Dulay *et al.* used), while the acquisition of language or skill in using the language are more an "unconscious" (the more common term in psychology rather than "subconscious") thing. But those terms will not serve us well. If used in their most general sense they are too crude, and if used in the more restricted sense expressive of Freudian psychodynamic theory they bring too much excess metaphysical baggage that must be rejected in a careful conceptual analysis.

Although the psychology of skills has not become a major part of contemporary cognitive psychology (the "information processing" approach), so-called "unconscious mental processes" have. But the model that has been used to account for them is Freudian in its fundaments. Whereas Freud posits two minds, one conscious and one unconscious to account for the internal contradiction manifested in clinical resistance, the cognitivists have posited that unwanted inputs are blocked from the "central processor" (conscious mind) by means of "filters" (which finally become as complex as the central processor and therefore function like a second mind, but one that is not conscious). We will propose instead an account in terms of the psychology of skills.

We have argued elsewhere (Brown, Warner & Williams, 1985) that the Freudian concept of an unconscious is an unnecessary one, a conceptual artifact. It is an invention rather than a discovery, a logical consequence of the way psychologists have always approached perception and cognition--by assuming separate discrete stimulus and response units (atomism). We have further shown that the received view of "unconscious mental processes," or "processing without awareness" in contemporary cognitive psychology is closely parallel to the Freudian splitting of the psyche into the conscious and unconscious components and fails on similar grounds. Whereas Freud used ordinary language terms such as ich (German for I, the ego), uberich (German for over me, the superego), and es (German for it, the id), the new cognitive psychology uses a computer metaphor, words such as processor or filter. How strange it is that the academic psychology that rejected the Freudian concepts a few decades ago as artificial "mental fictions" now takes them seriously because they are expressed within a computer metaphor and illustrated with a flow chart. But both explanatory approaches end in paradox (Fingarette, 1969; Brown, Warner and Williams, 1985), and on those grounds alone can be rejected as inadequate.

A second reason for us to reject the cognitive science "multiple processors" approach is that it is essentially a "tacked on" concept as far as language acquisition is concerned. The importance of understanding automaticity in language usage is apparent, but this approach to explaining it attributes the nonconscious aspects of language to some hypothesized mentalistic structure and thereby cuts off inquiry. In Dennett's (1978, p. 56) terms it is a virtus dormitiva. Brown and Williams (1983) and

Brown, Warner and Williams (1985) have offered an alternative way of accounting for so-called "unconscious mental processes" that is not mentalistic in this sense, does not end in paradox, and is integrally related to an understanding of language as skilled behavior. Even a brief summary of this approach, referred to as "transparency theory," would make this chapter much too long. The interested reader is referred to those two sources. I will instead give a brief outline of Polanyi's psychology of skills (which is foundational to our theoretical approach), which may be enough to give an idea of the kind of learning theory one could build from a transparency theory stance.

In his classic philosophy of science book, Personal Knowledge, Polanyi (1962) wrote two chapters on cognitive theory, the first entitled "Skills" (chapter 4) and the second "Articulation" (chapter 5). One of his most important explanations concerns the two kinds of knowing: tacit and explicit. One doesn't usually expect to find cognitive theory in a philosophy of science book, but his intention seems to be to show the limits of scientific knowledge. Science deals with knowledge that is explicit and specifiable, capable of being verbally transmitted and publicly verified. But there is another way of knowing, the way in which skills are known. He calls it "tacit knowledge."

As an example of this tacit knowledge, he discusses the crafts of medieval Europe. The half literate Stradivarius created violins superior to anything that can be produced today, despite our technological advances. Yet one who has this skill would never to able to put it into words. The knowledge is not specifiable, it is far too subtle. It can only be learned by apprenticeship. For that reason many of the most valued crafts of the past have been forever lost. Similarly, in British Common Law the decision of the judge is often of greater value than any reasons he can give for that decision, for the actual reasons are assumed to be subtle and unspecifiable. This kind of "unconscious," if we wish to still call it by that name, is much different than the kind proposed by psychodynamic theory. Whereas the psychodynamic unconscious is hypothesized to consist of primitive and irrational urges that must be tempered by the rational ego, the kind of "unconscious" we are here describing is in a sense much higher and more rational than our specifiable knowledge.

This kind of unspecifiability is related to what one has in mind when saying, "I can see it clearly, but I just can't put it into words." Polanyi expressed it succinctly with his maxim, "We know more than we can say." We could refer to this first way knowledge can be unspecifiable as ineffability. Polanyi (1962, p. 56) discusses a second way knowledge can be unspecifiable, which he refers to as logically unspecifiable. As an example of this he points out that a skilled pianist could certainly identify each of the chords that he plays in a given piece, but may not be able to do it, even to himself, while still playing. In other words, he can focus on the whole performance or on a part, but not on both at the same time.

There are, then, two ways that our own thought, percepts or actions may be unspecifiable to us. They may be ineffable or they may be logically unspecifiable. The concept of something being logically unspecifiable is explained in terms of two kinds of awareness, focal awareness and subsidiary awareness. In order for the pianist's performance to proceed smoothly, he must focus on the totality, the Gestalt of the piece as he proceeds, with the particulars being relegated to subsidiary awareness. If he were to focus too intently upon any part, the performance would falter, the sense of context would fail.

When a skilled carpenter hammers a nail (p. 55), he is aware of both the hammer and the nail, but in different ways. He attends through the hammer to the nail. The hammer becomes like an extension of his body, such that he doesn't focus on the feelings of the hammer against his palm, but focuses through them to the contact of the hammer with the nail. The contact of the hammer against the nail is in focal awareness but the carpenter is subsidiarily aware of the feelings of the hammer against his hand. The nail is the object of his attention but the hammer is an instrument of attention.

Polanyi's description of language in these terms (p. 57) is particularly insightful. When we read, words become instruments of attention with the underlying meaning as the object of our attention. If we focus instead on the individual words, we fail to get the apprehension of the whole. It is thus possible to read too slowly. We can identify every word separately, but there is no coherence to the whole, and we go over it and over it without comprehension. In Polanyi's words, "all particulars become meaningless if we lose sight of the pattern which they jointly constitute."

He refers to this as "the transparency of language" and he describes it in this way:

> My correspondence arrives at my breakfast table in various languages, but my son understands only English. Having just finished reading a letter I may wish to pass it on to him, but must check myself and look again to see in what language it was written. I am vividly aware of the meaning conveyed by the letter, yet know nothing whatever of its words. I have attended to them closely

> but only for what they mean and not for what they are as objects. If my understanding of the text were halting, or its expressions or its spelling were faulty, its words would arrest my attention. They would become slightly opaque and prevent my thought from passing through them unhindered to the things they signify. (p. 57).

We have briefly summarized five concepts in Polanyi's account of cognition:

1. Two kinds of knowledge--tacit and explicit.
2. Two ways knowledge is unspecifiable--ineffability and logical unspecifiability.
3. Two kinds of awareness--focal and subsidiary.
4. Two ways we attend--to objects of attention and through instruments of attention.
5. The transparency of language.

If one wishes to refer to tacit knowledge as an "unconscious mind," it must be recognized that it is a very different kind than what Freud describes. The Freudian one is primitive and irrational, the "pleasure principle" rather than the "reality principle." But Polanyi describes tacit knowledge as super-rational, much subtler and wiser than that which we can make explicit. Indeed he characterizes the great challenge of science as seeking to make explicit more and more of the wisdom of tacit apprehension and the subtleties of skilled performances.

Learning Theory and the Language Laboratory

In discussing the potential impact of Wong-Fillmore's observations upon learning theory, we spoke above of some of the unique characteristics of language acquisition as a variety of learning, particularly that it can happen naturally, without instruction. We spoke of "serendipity," as though the Wong-Fillmore insights were some kind of a fortunate accident, that something so important to a general theory of learning should emerge from examining this one particular kind of learning. But it was no accident. When we study language acquisition, we are studying the most fundamental aspect of human learning. And if we study it carefully and well, we will have a strong foundation for understanding the most crucial issues of knowledge and learning.

Since we learn other things through language, our knowledge of language differs from our knowledge of other things. There is no other kind of learning that is a good parallel to the learning of a language. We sometimes refer to mathematics as a language, but it is so only metaphorically. We use mathematics as a tool, but we live in and through language. It is the essence of self-reflective consciousness. It is the milieu of all other learning. An account of a child's development in his or her first language is as close as we can come to describing the acquisition of mind, and to acquire a second language is in some ways like acquiring a second mind.

Nor should it be surprising that the insights that have come from observing second language acquisition transcend the principles and categories available from a behavioristic or from an information processing analysis of the learning process. For, those theorists try to account for learning within a "meaning-less" weltanschauung, that is, without dealing with meaning (Williams, 1985; Faulconer & Williams, 1985). As Neisser (1976, p. xiii) said, the information processing theories "treat consciousness as if it were just a particular stage of processing in a mechanical flow of information." In such an account meaning has no place. And yet meaning is the central issue in language. The kind of theory we have proposed here differs fundamentally from the information processing approach to learning. The roots of transparency theory are found in philosophical hermeneutics (which could be called "interpretation theory" or "meaning theory," see Palmer, 1969, for an overview).

One may argue that transparency theory as we have alluded to it here is not a theory, at least not in the traditional sense of proposing mechanisms by which learning takes place. That is true. It can be seen as a reaction against the mechanistic approach to learning and cognition that explains learning in terms of "cognitive processors." The central method is conceptual exploration rather than explanation in terms of mechanistic reduction. From that standpoint it can be seen as more of an approach, an integrated collection of propositions concerning the nature of language learning. But propositions of this kind can guide empirical enquiry and produce knowledge just as well as mechanistic "explanatory" models can. Furthermore, we propose that theory of this kind can make more subtle and more precise predictions than explanation in terms of hypothesized mental processors.

In this last section of the chapter we will outline some of the implications of this approach for the place of the language laboratory in producing language skill. Some of them will be at odds with current perspectives in the communicative competence approach to second language. The contradictions will indicate empirical work that needs to be done in preparation for the development of an instructional plan for language training in the laboratory and the classroom.

The language laboratory could be seen as potentially "subversive" from within the communicative competence approach to language acquisition. That is, since the language lab gives experience and practice in actually hearing and speaking the language, and since immersion in the language has been found to be much more effective than explicit instruction, the lab could be seen as a replacement for classroom instruction. But there are a number of reasons why this isn't a serious threat. In the first place, most language laboratory exercises as they have been traditionally carried out are far removed from the actual social use of language in an immersion setting, and not nearly so beneficial. Many of us have had the experience of listening by the hour to German or Spanish monologue over the earphones and picking up maybe every fifth word and wondering why we are there, even while making fairly good progress within the language class.

It could be argued that this state of affairs could be substantially improved by constructing "i + 1" laboratory exercises (where we only expand the vocabulary a little at a time, as proposed by Krashen) with a more comprehensible kind of input, and that this would be very efficient in producing receptive skill. Or we could, presumably, construct interactive CAI (computer aided instruction) exercises in which the learner gains a great deal of practice in constructing formulaic utterances--even incorporating an operant strategy where one can only progress in a computer game by continually progressing in automaticity and in the rate with which formulaics can be produced. Drills that produce useful formulaic "habits" may go a long way toward the development of automatic skill in the language. But that vision of the future of the language laboratory lacks one important thing. It is not geared to the social use of the language. It focuses upon the cognitive use of language rather than the social, a person interacting with an audio tape, a video tape, or most recently a computer.

But the impact of face to face social interaction in producing language skill is, as indicated above, perhaps the most important factor in determining success in language acquisition. And, with respect to social factors such as producing a peer reference community to support progress within the language, the classroom may have a clear edge over the language lab. Many of the newer approaches to classroom instruction (for example Asher, 1972, and Terrell, 1977) within the communicative competence tradition are geared toward taking advantage of this social interaction potential of the classroom. But it may also be that the language laboratory can be developed in the coming years in ways that create opportunities for social interaction. It is even possible that a structured social interaction can be created in the laboratory that is more concentrated and more effective in producing second language skill than natural immersion in the culture. It would require a radical redesigning of the physical facilities from the individual work booths to more of a group dynamics interactive setting.

But we have been assuming that the communicative competence language theorists are right. It may be that the pendulum has swung too far away from explicit instruction as an important factor in language acquisition. There is anecdotal evidence from the study of musical skill to suggest that some direct explicit instruction in the second language may actually help to make the skill more stable and permanent. The Suzuki method of music instruction has been phenomenal in its capacity to produce superb performers at very young ages, and this is very parallel to what a communicative competence approach does with respect to language skill. An accomplished violinist at our university told me that those who learn by this method become very skilled but that it is a fragile thing unless solidified in later years by explicit learning of the principles underlying it. It is reminiscent of the way second language skill comes and goes easily in young pre-literate children. It could be hypothesized that the ability to read and to write solidifies second language listening and speaking skill. This could be a productive area for second language acquisition research. It may well be that one of the greatest strengths of the language laboratory will be in solidifying skill through explicit instruction. That is, it may be that audio-video presentations of a number of well practiced and usable formulaics with a careful analysis and explanation of the internal structure of each could solidify the tacit skill in using such phrases. But such an approach would probably not prosper if it were done in a social vacuum. The formulaics should first be well-practiced automatic social habits before one attempts to use them as an instructional tool. How interesting it would be if we were to find that formulaic skill can best be produced in the classroom and explicit knowledge in the language laboratory--a reversal of our usual association of theory with the classroom and practice with the lab.

One of the fundamental questions of this chapter is why immersion is so effective in producing skill in a second language. In terms of transparency theory, it is because subjects are using the language as an instrument of attention through which they focus upon the content of the social interaction, the object of attention. They gain skill in language usage because they acquire it in the same mode they are to use it, as a tool through which they attend to the meaning behind it. I am proposing, then, that the fundamental attribute that makes for effective acquisition of skill in a second language is that the language be acquired in the process of learning or accomplishing something else, so that linguistic structures are tacit and subsidiary to the focused task.

One of the major issues in need of further empirical study is the question of the relative importance of developing receptive skill in the language as opposed to productive skill. Wong-Fillmore's observations argue strongly for the value of acquiring a number of usable holistic phrases early in the acquisition process. Krashen (1981) on the other hand has argued for the effectiveness of approaching the second language primarily from the standpoint of reception, with a continually expanding base of "comprehensible input" and the ability to speak emerging naturally from that--similar to the way and infant hears much before beginning to speak. In the carpenter's skill metaphor, Krashen is proposing a kind of apprenticeship in which the student does a lot of observing and not much building. There is clearly a difference between the two approaches in what each holds as the fundamental attribute that is crucial to second language acquisition. In one it is an expansion of comprehensible input and in the other it is the instrumental use of language to engage the second-language-speaking other in interaction.

We have a metaphor for language acquisition that is much closer to language than the skill of a carpenter: learning to write programs in a computer language such as PASCAL or FORTRAN, etc. Although many computer science professors still teach programming languages as though they were an academic topic, many if not most of the students who take such courses still do not have skill in the computer language after completion of the course. (The same phenomenon is legendary in the teaching of statistics.) That is because these things are skills, best learned by doing and by apprenticeship. They are tacit and cannot easily be specified. The principles and structure can be explicitly stated, but to be able to state or to repeat the major principles is not to be able to program, to process data or to converse. The best way to learn a computer language is to have a problem to solve, a task to accomplish. It is best if it is a task that you really care about, an exciting problem, something you can really put your heart into. It's also better if it is a fairly difficult problem. Not so hard that you can't do it in weeks, but hard enough that you can feel proud of yourself at the end. Then you need a source of information. It can be a mentor, a good manual or book, or the "help" files on the computer. With resources available, you search for those word "tools" you really need to do the job. As you use the tools to solve a problem you really care about, you grow rapidly in skill.

Both Krashen's hypothesis and the one we have constructed from Wong-Fillmore's observations are based upon observations of the way in which language is acquired in a natural situation. But now, research is needed to assess the relative value of each approach in a structured language learning context.

The question has arisen as to whether explicit instruction in the language (as in the traditional second language classroom) could interfere with acquisition. Krashen (1981) has discussed the way such learning can make one overly self conscious in "monitoring" one's own use of the language. In fact, the "monitor" is one of the three cognitive processors (along with the "organizer" and the "filter") proposed by Dulay, Burt & Krashen (1982, p. 6, pp. 45-73). One would certainly not propose that we have here the description of some actually existing physiological structure, so it must be a kind of metaphorical description of a mental function. Perhaps it can be stated in a way that has empirical consequences with a clear alternative hypothesis. It is primarily an attempt to explain why explicit instruction is slower and less efficient in producing language skill than immersion or communicative experience. The fundamental idea is that direct focus on the structure of the language (rules, cases, and in general the "proper" way to use the words), makes one too self conscious, which interferes with language production.

An alternative account for the superiority of "learning by doing" could be given in terms of Polanyi's psychology of skills. Consider the task of learning the meaning of the word auf in German (or most prepositions in any language for that matter). One can see some examples in which it is translated as in (like auf Deutsch), others as on (das Buch liegt auf dem Tisch) and still others as to (geht auf die Tur), or as up (stehen Sie auf!), etc., etc. The use of auf is a skill, best learned in the fray of misuse and correction until one gains a tacit apprehension of how to use it like a tool, until it becomes a well-practiced habit.

Presumably one could design an experiment in which these two explanations of the phenomenon ("monitor theory" vs. "tool theory") could be measured against one another. It would be possible to construct exercises to produce the skill of the use of a preposition in the target language, with a comparison of tacit-acquisition-by-use against explicit instruction and memorization. Self consciousness could be manipulated by either taping or videotaping the subjects' production or having other subjects there to observe them. The effects of these independent variables could then be assessed both in terms of the subjects' explicit knowledge and also in terms of their tacit communicative skill.

The "organizer" (which Dulay, *et al.*, p. 54 liken unto Chomsky's "Language Acquisition Device") can be seen as a loose metaphor for the observation that one acquires a tacit working knowledge of the structure of the second language in the process of actual communication. As we have seen, we can identify at least two contrasting hypotheses about what is most effective in producing this skill: the structuring of "comprehensible input" versus practice in developing useful formulaics. Of course, it may be that the interactive combination of both kinds of training is much more effective than either alone. Many possible factorial studies could be designed to assess the relative contribution of each of these factors as well as their interaction on a multitude of dependent variables, such as vocabulary, sentence structure, communicative ability in various topics and tasks, etc. In studies such as these, the important thing is of course not which position is "right," but the new empirical observations produced by exploring such a question. As a specific example, one could test the relative effectiveness of the two approaches in acquiring the ability to "prepose" in constructing questions, to move from saying "Dinosaurs eat what?" to "What do dinosaurs eat?" (McNeill, 1970, pp. 98-99). From Polanyi's insights we fully expect that a tacit skill in these things can be produced much more quickly and more easily than an explicit knowledge of them.

To refer to the impact of social factors as a "filter" (Dulay, *et al.*, 1982, pp. 46-54), is a particularly inappropriate metaphor, because it focuses on such factors as only a kind of "block" to cognitive factors in language acquisition. That is very much in the spirit of contemporary information processing psychology which makes many arbitrary and artificial distinctions between different aspects of our functioning (such as social, cognitive, affective, etc.) as though each is a separate "processor," rather than merely an arbitrary point of view from which we describe the whole of human functioning. We are social beings, and our so-called "cognitive processes" cannot be understood in isolation from our total way of being in the world, including our interactions with other people.

There are a number of very important and very difficult questions connected with the social aspects of language. Graham's (1984) "assimilative motivation" proposal brings up the question of whether one can hope to produce native-like language ability in the classroom and the language laboratory, separated as they are from the compelling peer group social forces. We usually speak of the "critical periods" observation with respect to a second language (that native-like skill cannot be produced after the teen-age years) as though it were a given, but perhaps it's time to challenge the adequacy of the empirical support for this view. The answer to the question of critical periods may depend upon whether we are focusing on communicative ability or native-like pronunciation and dialect. It may be very possible for older persons to acquire a high level of skill in communicative ability and be just as efficient in this as younger persons, and yet not match the skill of younger persons in reproducing dialect. On the other hand, we may find that social conditions can be identified that produce native-like pronunciation in older learners. Although a number of studies have dealt with these issues (see Dulay, Burt and Krashen, 1982, for a review) the findings are far from conclusive. And, of course, we can't know that no approach can produce native-like speech in older learners until we have tried all possible approaches.

A "recognition" paradigm (see for example Miller & Nicely, 1955) may be a very productive way of making some precise statements about the parameters of native-like speech. For example, it could be valuable to record communicative interaction of a number of second language speakers some of whose skill was obtained early and some late in life. They could then be placed in a context of native speakers and then have listeners recognize which is which. Detailed phonological and acoustic analyses could make our knowledge of how these differ much more precise and detailed. It would be valuable also, to conduct similar studies comparing communicative competence of these different kinds of bilinguals.

The biggest challenge facing both the language laboratory and the classroom is to create a reference peer group with enough social influence to create a milieu for using language as the social tool that it is. Perhaps we should have no illusions that one could create "assimilative motivation" or native-like pronunciation within a college setting or with older learners, but such social forces are probably also needed even to effectively produce an acceptable level of communicative competence in the language. But we still are seriously lacking in knowledge of the fundamental principles (even though we have come a long way since 1960). We need a great deal more research on the fundamental questions, challenging again many of the tenuous findings of previous research that we take so seriously. With an expansion and solidifying of our empirical base, we can expect a much more adequate theory of learning. Nothing could be more practical in furthering the development of an effective contemporary approach to integrating the classroom and the language laboratory in second language instruction.

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APPENDICES

It should be understood that the lists of sources included in these appendix sections are not exhaustive, but they will serve as a starting point for those who are beginning to acquire foreign language materials for their learning centers.

APPENDIX A

Computer Software Vendors and Information Sources

The following is a list of software vendors or sources for information about computer programs that are created specifically for use in foreign language education settings.

Boeing Computer Services
P.O. Box 24346
Seattle, WA 98124

CALICO Computer Assisted Language Instruction Consortium
P.O. Box 7310 University Station
Provo, Utah 84602

CALSOFT
346 N. Kanan Rd.
Suite 103
Agoura, CA 91301

COMPress
P.O. Box 102
Wentworth, NH 03282

Continental Press, The
Elizabethtown, PA 17022

Continental Software
11223 South Hindry Avenue
Los Angeles, CA 90045

CRWTH Computer Coursewares
613 Wilshire Blvd., Suite 200
Santa Monica, CA

DCH Educational Software
DC Heath & Company
125 Spring Street
Lexington, MA

Dicomed Corporation Program Control Center
P.O. Box 1610
Minneapolis, MN

Digital
200 Baker Avenue
Concord, MA 01742

Dilithium Press
P.O. Box 606
Beaverton, OR 97075

Do Kay Computer Products, Inc.
2100 De La Cruz Blvd.
Santa Clara, CA 95050

Educational Activities, Inc.
24 Spinnaker Place
Redwood City, CA 94065

EduSoft
P.O. Box 2560
Dept. 52
Berkeley, CA 94702

EMC Publishing Co.
300 York Avenue
St. Paul, MN 55101

Encyclopaedia Britannica Education Corporation
425 North Michigan Avenue
Chicago, IL 60611

Epie & Consumer Union
P.O. Box 839
Water Mill, NY 11978

Epigram Institute
P.O. Box 839
Water Mill, NY 11976

Federal Computer Conference
P.O. Box 36
Wayland, MA 01778

Gessler Publishing Co.
900 Broadway
New York, NY 10003

IBM Corporation
P.O. Box 1328
Boca Raton, FL 33432

Individual Software Incorporation
1163 Chess Drive
Foster City, CA 94404

Intellectual Software
798 North Avenue.
Bridgeport, CT 06606

Island Software
P.O. Box 300
Lake Grove, NY 11755

K12 Micro Media
172 Broadway
Woodcliff Lake, NJ 07675

Langenscheidt Publishers, Inc.
46-35 54th Road
Maspeth, NY 11378

Library Software Company, The
P.O. Box 23892
Pleasant Hill, CA 94523

Lingo Fun, Inc.
P.O. Box 486
Westerville, OH 43081

McGraw Hill Book Company
1221 Avenue of Americas
New York, NY 10020

Micro Center
Dept. MR 350
P.O. Box 6
Pleasantville, NY 10570

Microcomputer Workshops Courseware
225 Westchester Avenue
Port Chester, NY 10573

Minnesota Educational Computing Consortium
2520 Broadway Drive
St. Paul, MN

National Textbook Company
4255 North Toughy Avenue
Lincolnwood, IL 60646-1975

Plantronics Frederic Electronics
7630 Hayward Rd.
P.O. Box 502
Frederic, MD 21701

Psychotechnics Inc.
1900 Pickwick Ave.
Glenview, IL 60025

Queue
5, Chapel Hill Drive
Fairfield, CT 06432

Regents Publishing Co.
2 Park Avenue
New York, NY 10016

Rocking X Software Company
1207 West Lee Street
Borger, Texas 79007

Visual Communication Group
7100 North McCormick Rd.
Chicago, IL 60645

Weible Language Institute
24 South 8th Street
P.O. Box 870
Allentown, PA 18105

Xerox Office Marketing
1616 N. Fort Myer Drive
Arlington, VA 22209

APPENDIX B

Sources for Foreign Language Audio and Video Materials

Included below are several resource organizations, programs, and commercial sources where audio and/or video foreign language materials can be acquired.

Agency for Instructional Television
Box A
Bloomington, Indiana 47401

Alpine Film and Video Exchange, Inc.
1024 N. 250 E. P.O. Box 1254
Orem, UT 84057
(Videotapes are available for teacher training programs and for classroom use.)

Asia Society-Education Department
725 Park Avenue, NY, NY 10021
(In VHS and Beta formats, each videocassette contains two programs called letters designed for secondary schools that promote an understanding of Japanese culture.)

Association Films, Inc.
866 Third Avenue, NY, NY 10022
(Contact Sona Holman for Paris on the Run, produced by French Press & Information Service for loans to schools.)

Audio Forum
Jeffrey Norton Publishers
On the Green
Guilford, CT 06437

Austrian Institute
11 East 52nd Street
New York, NY 10022
(Films and slides of historic and tourist information.)

Bauer International
119 North Bridge Street
Somerville, NJ 08876

BBC English by Radio and Television
Bush House, London WC2B 4PH

Britannica Films, EBEC
425 North Michigan Avenue
Chicago, Illinois 60611

British Broadcasting Corporation
c/o Video Forum, Jeffrey Norton Publishers
145 East 49th Street, New York, NY 10017

Cable Films
P.O. Box 7171
Kansas City, MO 64113
(Foreign films with English subtitles, VHS & Beta some programs on PAL and SECAM standards.)

Children's Television International, Inc.
8000 Forbes Place, Suite 201
Springfield, VA 22151

Cine World
13 Arcadia Place
Old Greenwich, CT 06870

Cinema 5
595 Madison Avenue
New York, NY 10022

Cinta Video (Spanish)
55 Summitt Avenue
Sea Cliff, New York, 10579

CLIO Awards
30 East 60 Street, New York, NY
(Prepared package of 20 television commercials and teacher's guide available for language teaching.)

Corinth Films
410 East 62nd Street
New York, NY 10021

Cornell University
Television-Radio-Film Center
Martha Van Renssalaer Hall
Ithaca, NY 14853

Cultural Affairs Departments
All foreign embassies

Devin Productions, Inc.
150 West 55 Street, NY, NY 10019
(Offers fifteen programs of HEBREW WITH SIMON TOV.)

Embassy of Spain, Cultural Office
4200 Wisconsin Avenue, N.W. Suite #520
Washington, DC 20016
(Write for the booklet "Spanish Visual Aids")

Embassy of Spain, Information Office
785 National Press Bldg. Washington,DC 20045
(Write for the listing of films and slides available for loan to schools.)

Embassy of the Federal Republic of Germany
4645 Reservoir Road, N.W. Washington, DC 20007
(For catalogue of educational and documentary films loaned to schools for non-commercial presentations. Orders are addressed to: Modern Talking Picture Service, Inc.
711 4th Street, N.W., Washington, DC 20001)

EMC Publishing Co.
300 York Avenue
St. Paul, MN 55101
EMC Corporation
180 East Sixth Street
St. Paul, Minnesota 55101

FACSEA
972 Fifth Avenue, NY, NY 10021
(An excellent source for French 16 mm films and video cassettes for purchase or rent.)

Film Images/Radim Films, Inc.
17 West 60th Street
New York, NY 10023

Films Incorporated
440 Park Avenue South
New York, NY 10019

Films for the Humanities
P.O. Box 2053
Princeton, NJ

German Educational Television Network
666 Fifth Avenue, NY, NY 10022
(Monthly news programs with beginning and intermediate sound tracks)

Gessler Publishing Co.
900 Broadway
New York, NY 10003

Goethe House, German Cultural Institute
1014 Fifth Avenue
New York, NY 10028
(An excellent source for German films, tapes and slides.)

Great Plains National instruction Television Library
Box 80669
Lincoln, Nebraska 68501

Heinle and Heinle Publishers
286 Congress Street
Boston, MA 02210

Hollywood Home Theatre
c/o Budget Video
4590 Santa Monica Blvd.
Los Angeles, CA 90029
(VHS & Beta Cassettes.)

INTER NATIONS-Kulturelle Tonbanddienst
Kennedyallee 91-103, D-5300 Bonn 2,
Federal Republic of Germany.

International Film Bureau
332 S. Michigan
Chicago, Illinois 60604
(French programs Augourd'hui and Chroniques de Francais.)

Joint East Asian Language and Area Center
Room 200 Lou Henry Hoover Building
Stanford University, Stanford, CA 94305
(25 videotapes in Mandarin with Chinese subtitles. 16 of the tapes have scripts for language lessons.)

Korolev, L.
Foreign Relations Department
12 Korolyn Street, Moscow, USSR
(Catalogues are available from SOVIET TV PRESENTS...on documentary films and "Great Names of Russia"; the format PAL/ SECAM.)

Kote Blance Productions
113 W. 69th Street
Cut Off, Louisiana 70345
(Cajun French films)

Library of Congress National Endowment for the Arts
The National Gallery of Art--Extension Service
Washington, DC and the U.S. National Park Service films from Harpers Ferry Historical Association.
P.O. Box 197, Harpers Ferry,
West Virginia 25425
(Produce and distribute audiovisual programs in art education that are loaned free to schools. Sometimes, the sound track is available in a language other than English. Write for their catalogues.)

Linguitronics
P.O. Box 9504, Arlington, VA 22209
(Over fifty titles on Russian history, geography, and culture. These video programs should be previewed before purchase for content and relevance.)

Local resources: ethnic groups, consulates, industries, churches, universities, international studies, programs, area studies centers, foreign exchange programs, state departments of education.

Mary-Anne Vetterling
Modern Languages, Northeastern University, Boston, MA 02115
(A bibliography of videotapes available in Spanish.)

Maryland Center for Public Broadcasting
11767 Bonita Avenue
Owings Mills, MD 21117

National Textbook Co.
4225 W. Touhy Avenue
Lincolnwood, IL 60646-1975

National Association for Foreign Student Affairs
1869 19th Street, N.W.,
Washington, D.C. 20009
(Has a listing of 16mm films & videocassettes of interest to foreign students).

National Audiovisual Center
General Services Administration
Washington, DC 20409

National Geographic Society
Educational Catalogue
17th and M Streets, N.W.
Washington, DC 20006
(16mm films and slide programs on national parks and museums.)

National Film Board of Canada
16th Floor
1251 Avenue of Americas
New York, NY 10020
(Specify versions grid for titles available in other languages)

NEH Institute, Television Department
SUNY at Albany, New York
(An excellent source of contemporary interviews in French)

Nelson Filmscan
Nelson House, Mayfield Road, Walton-on-Thames,
Surray, Kt12 5PL England
(Video cassettes and workbooks for English language courses
These episodes promote vocabulary development, speaking practice
as well as an informative visual guide for new cultural
adaptations).

New Yorker Films
16 West 61 Street
New York, NY 10023

New Line Cinema
853 Broadway
New York, NY 10003

Nippon Hosco Kyokai (NKH-similar to PBS & BBC)
Radio & Television Culture Research Institute
2-1-1 Atago, Minato-Ku, Tokyo 105, Japan
Also has a west coast distributor: Institute of East Asian Studies, Publication Office, University of California, Berkeley, California 94820.
(A catalogue can be ordered from either address.)

Omni Zoetrope
916 Kearney Street
San Francisco, CA 94133

Phoenix Films
470 Park Avenue
New York, NY 10011

Public Broadcasting Services
475 L'Enfant Plaza S.W. Washington, DC 20024
(Catalogue is available with both rentals and purchases.)

Regents Publishing Co.
2 Park Avenue
New York, NY 10016

RMI Media Productions
120 West 72nd Street
Kansas City, MO 64114
(For Spanish functional and career oriented programs.)

Scholastic Magazine
50 West 44th Street, NY, NY 10036
(Provides the French program Toute La Bande)

Tamarelle's French Film House
110 Cohassett Stage Road
Chico, California 95524
(VHS & Beta cassettes.)

Time Life Film and Video Catalogue
P.O. Box 644, Paramus, NJK 07652
(lists language programs in French and Spanish)

Tricontinental Films
333 Avenue of the Americas
New York, NY 10014

TV Ontario
Information Officer, Box 200 Station Q,
Toronto, Ontario, Canada, M4T 2T1
(For the educational network catalogues and the booklet "See for Yourself" Creative Television in the Elementary Classroom. Four research reports on the use of television for language instructors are available from TV Ontario, Office of Project Research)

Washington International Center (Meridian House)
1630 Crescent Place, Washington, DC 20009
(Videotape dealing with American cultural themes for use in training programs.)

Weible Language Institute
24 South 8th Street
P.O. Box 870
Allentown, PA 18105

APPENDIX C
Sources of Information Regarding Copyright Laws and Restrictions

While there is still much confusion and controversy about copyright and its restrictions, there are several references that can help in understanding the Copyright Law. Listed below are a few articles and books that have been published about the law. The reader should be aware, however, that information published about the Copyright Law--including the "Guidelines" for nonprofit educational institutions--is not binding. One should consult the Copyright Act itself to determine the extent of the Law.

A copy of the Copyright Law and related circulars published by the Copyright Office can be obtained by writing to the Information and Publications Section, LM-455, U.S. Copyright Office, Library of Congress, Washington, D.C. 20559. Circulars of particular interest to persons associated with foreign language learning centers are:

Circular R1: Copyright Basics

Circular R21: Reproduction of Copyrighted Works by Educators and Librarians

Circular R38a: (Contains a list of countries that maintain copyright relations with the United States.)

Circular R99: Highlights of the New Copyright Law

Specific information regarding copyright can be obtained from the Copyright Public Information Office by calling (202) 287-8700 on weekdays between 8:30 a.m. and 5:00 p.m.

Publications about copyright:

American Library Association. *The New Copyright Law: Questions Teachers and Libraries Ask.* Washington, D.C.: National Education Association, 1977.

Bell, Trudy. "Copying Computer Software for Educational Purposes: Is It Allowed?" *Personal Computing* (November, 1983): 236-39, 242.

"Controversy Over 'Home Use Only' Labeling Leads to Statement of Clarification." *AECT Access* 1.2 (January/ February, 1984).

Copyright and Educational Media: A Guide to Fair Use and Permission Procedures. Association for Educational Communications and Technology and the Association of Media Producers, 1977. [Copies can be purchased through AECT, 1126 Sixteenth Street, N.W., Washington, D.C. 20036.]

Helm, Virginia. *Software Quality and Copyright: Issues in Computer Assisted Instruction.* Association of Educational Communications and Technology, 1984.

Johnston, D.F. *Copyright Handbook.* 2nd edition. New York: R.R. Bowker, 1982.

Miller, J.K. *U.S. Copyright Documents: An Annotated Collection for Use by Educators and Librarians.* Littleton, CO: Libraries Unlimited, 1981.

________. "Copyright Protection for Bibliographies, Numeric, Factual, and Textual Databases." *Library Trends* (Fall, 1983): 199-209.

________. *Using Copyrighted Videocassettes in Classrooms and Libraries.* [Available from Copyright Information Services, 440 Tucker Avenue, Friday Harbor, WA 98250.]

Powell, Jon T. "Copyright Guidelines for Educational Use." *Media and Methods* (March, 1983).

Sinofsky, Esther R. "Copyright in a Nutshell." *Instructional Innovator* (January, 1984): 44-47.

________. "A Report from the AECT Copyright Task Force on Copyright Issues." *Tech Trends* (May/June, 1985): 12-17.

30 Questions Librarians Ask about Taping Copyrighted Television Programs for Educational Use: Interpreting the Guidelines for Off-Air Recording. Chicago: American Library Association, 1982.

Troost, F. William. "When to Say No to Off-Air Videotaping." *Instructional Innovator* (January, 1985): 24-26.

"What Teachers and Librarians Can and Can't Do Under the New Law." *Chronicle of Higher Education.* October 11, 1976.

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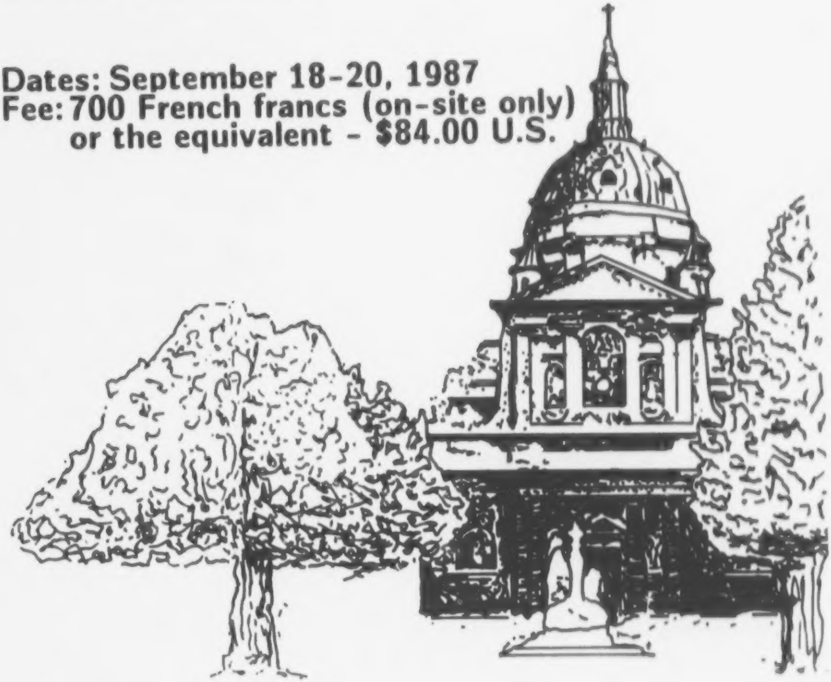

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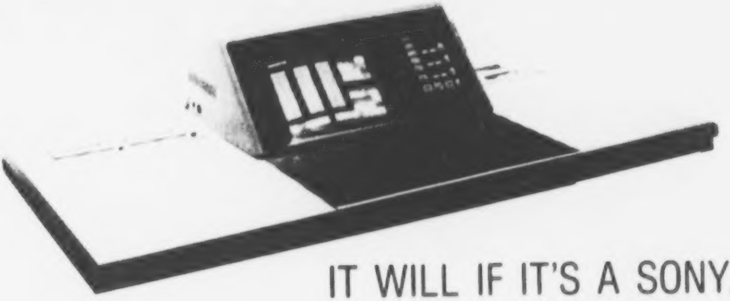

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